

From the system builders.  
The system builders' computer.

## Argus700 Series 2.

FERRANTI  
Computer Systems

AN exhibition of up-to-date technology and engineering opens to the Gaordie public this week to celebrate the 900th birthday of Newcastle-upon-Tyne. It takes place at the University campus, where specially purchased

chased inletable halls house an impressive range of products which draw on traditional and new aspects of industry in the North East. Despite losing the battle for the Inmos site, Newcastle shows

a lively interest in the possibilities that open up when engineering skills are linked with the power of the microprocessor. For that reason the City's Polytechnic is linked with the University and the software house CAP-OPP in the Microelectronics Applications Research Institute, MARI, based in Newcastle's Jesmond Road.

In MARI's wake a number of specialised software houses are springing up in the North East, and the region even boasts a home-grown machine, the System 800. It is manufactured in Killingworth, already famous in Gaordie culture for its clog-shod champion sword dancers.

# Storage Tech to buy Documentation

FOLLOWING its unsuccessful courtship with Andahl, Storage Technology has announced that it plans to acquire IBM compatible printer manufacturer Documentation. Storage Technology chairman Jesse Awelida said that the Documentation printer line was seen as a "natural complement" to his company's storage equipment.

The two firms have signed a letter of intent to merge under terms that will give Documentation shareholders 0.85 shares of Storage Technology stock for each of the 3,050,000 shares they hold in Documentation. This offer values Documentation at \$52 million based on the \$20 value of Storage Technology shares at the end of August.

### Fastest

Colin Cook, Northern Europe managing director of Storage Technology, said that the number of people in Documentation in this country fitted very well Storage Technology's expansion plans for the next year, and he anticipated that both companies' product lines would be offered jointly by the two sales forces.

Documentation's product line includes the 3000 lpm Impact 3000 which is the fastest line printer available, and the company is set to introduce a high speed laser printer called Laserpage to compete with the IBM 3800.

But Documentation has recently been through a period of serious financial problems and management shake-ups, mainly because of its extremely rapid growth. In its financial year ended February 1 the company reported a turnover

of \$90 million, a formidable 53% increase over the year before. But it made a loss of \$9.5 million compared with a \$6.5 million profit a year earlier. At the time Documentation cited the cost of setting up its plant in Ireland as a major cause of the loss.

The company's new chairman, Richard Testa, has denied that Documentation was interested in Storage Technology's offer because of its financial problems, adding that many of them had now been solved. Testa replaced Documentation founder Ray Halbert as chairman about four months ago.

Documentation headquarters is at Melbourne, Florida, and its European operations are currently controlled by Documentation World Trade based at Esher, Surrey.

## Fujitsu picks Eire — but manpower will be decider for NEC

EIRE has been chosen by Fujitsu as the location for its first semiconductor plant in Europe. The £40 million factory at Tallaght, near Dublin, will manufacture mainly microprocessors and memory devices and should create 1,000 jobs by 1985.

### Customer

One customer for the memory chips is likely to be Andahl which is 28% owned by Fujitsu and has had its own plant in Dublin for about two years.

Meanwhile, another Japanese semiconductor firm already manufacturing in Ireland, Nippon Electric, looks like choosing Livingston New Town in Scotland to preference to Dublin as the location for its third European plant. Nippon Electric chairman Dr.

Kogi Kobayashi visited Livingston last week and a decision is expected by the end of this month. The £20 million Nippon Electric development is expected to provide 600 new jobs within four years and the two organisations bidding for the prize are the Scottish Economic Planning Department, part of the Scottish Office, and Eire's Industrial Development Authority which successfully wooed Fujitsu.

### Incentives

Despite financial incentives offered by the IDA, Nippon Electric is understood to favour Scotland for its third factory because of the greater availability of labour.

A Commons Select Committee has recommended that the job of finding overseas investors for Scotland should be done by one body, like the Irish IDA. The committee says this should be the Department of Trade's Invest in Britain Bureau as opposed to the Scottish Development Agency, the Department of Industry and the Scottish Economic Planning Department as at present.

## IDMS by default

### From front page

Finance — the strategy study was disrupted primarily at housing development, which provided a comprehensive market for evaluation. The study was completed at 101,256 in respect of housing development. Factors considered were: separate data dictionary software; languages and teleprocessing products. IDMS was found to be adequate

for Camden's needs, despite reservations on query language facilities, quality control, security and integrity of data and the system's operational and long-term flexibility. The study was completed at 101,256 in respect of housing development. Factors considered were: separate data dictionary software; languages and teleprocessing products. IDMS was found to be adequate

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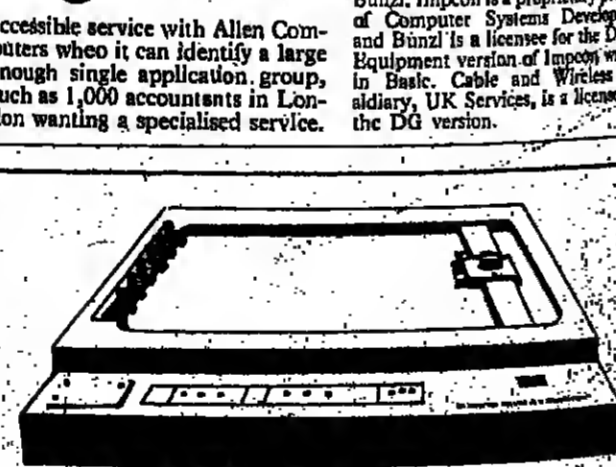
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### NEWS IN BRIEF

#### ICL bid shot down

ICL's first attempt to enter the defence business has failed and the UK Air Defence Ground Environment, UKADGE, contract has, it is expected (CW, September 1) gone to the UKSL consortium of Marconi and Plessey, with Hughes of the US providing the computer. Some of the work under the £10 million contract will be subcontracted to Thomson of France, and NATO is paying 80% of the bill.

#### Major centre

BURROUGHS is to establish a major European training and computer distribution centre at Milton Keynes. The first stage will be a 160,000 square foot residential college to house 400 students.

#### Isher-Woods bought

LUTON micro dealer Isher-Woods has been taken over by HB Computers of Kettering and will be renamed HB Computers (Luton). It will concentrate on Sharp, Pet and ACT 800 series kit.

#### Impecon

THE headline on our story of August 28 about a version of the Impac 28 in Cobol for Data General machines could have given the impression that it was developed by systems house, Buntz. Impecon is a proprietary product of Computer Systems Development and Buntz is a licensee for the Digital Equipment version of Impecon written in Basic. Cable and Wireless subsidiary, UK Services, is a licensee for the DG version.

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### Briefing

#### Users have their say

HONEYWELL comes top and Burroughs and NCR share bottom place in the first Distapco/Computer Weekly poll of user satisfaction in the UK mainframe market.

There were no outstanding stick marks against NCR in the detailed analysis, but although Burroughs' hardware and software came out on top, the company scored dramatically badly on technical support.

Commenting on the results, Burroughs says that it has been taking steps to improve matters: by the end of the year five new support centres will have opened, a total reorganisation of its field engineering organisation is at an advanced stage, and online diagnostic is being implemented.

"All this has happened since our outline plans were revealed to our users group by Mr Bill Conlin, vice-president and group executive of Computers on Saturday, 8th October," a spokesman added.

Distapco details — Page 17.

#### Second suit

A SECOND legal action against former Gamma Associates member, Karlin, is being initiated by the Robotics of Hartford, Connecticut. This time the US firm is submitting a petition for winding up Karlin Computer Services for alleged default of debts. They are completely different from the alleged debts that form the basis of the first legal action against the Karlin group of companies (CW, August 21).

#### Magic disc

ACSYS is the magic word that Dr. G. Andahl hopes will open doors for a bright new future in the IBM-compatible supercomputer market. Provided that the same time-to-market snags, his new company, which is due to launch its first product in a little over three years, will be called ACSYS Corp.

#### IBM replacement

THE new processor to replace IBM 3705 is expected by the end of the year, and users differ over what the replacement will include. One school of thought believes that as well as running the SNA network program, it will also run the VTAM access method.

The machine previewed in Computer Weekly (August 14), has a cost bottom base price of £150,000 for which the user gets 1.5 megabytes of main memory, two displays, one peripheral and one data communication subsystem and four line adapters. Software is separately charged.

The B5930 is the bottom model in Burroughs' large systems family, which currently includes several B6900 and B7800 models. The previous cheapest model in the family was the B6920 which costs £250,000 for a configuration similar to the smallest B5900, but with 2.2 megabytes of main memory (CW, March 6).

The B5900 has a 52-bit wide data bus and a 30-bit wide control bus, and the processor occupies 17 circuit boards and 12 square feet of floor space. "Minimal" air conditioning is required and power con-



Determinedness of the 400 metres hurdles sprinter — Corrie Ros van Tonningen of Control Data BV shows the way to win at the final of Computasters on Saturday. She won the Best Dutch Individual Ladies title. Full report, see pages 20 and 21.

## AMD follows 2901 with a 16-bit emulator chip

From Eileen Stainer, Sunnyvale, California

SAMPLES of the world's first general purpose 16-bit wide bit-slice microprocessor are due in the first quarter of next year. The chip, called the AM2916, comes from Advanced Micro Devices and follows that company's AM 2900 series, which has swept the board in the processor emulation market, being used in at least one model by almost all the world's major minicomputer companies.

According to an AMD spokesman, an 8-bit slice was considered not worth the development time and cost. "Most people who use the slices build them up into 16-bit configurations, and 8-bit slices would be just another intermediate step," he told Computer Weekly.

"Our bit-slice business started to build up about 18 months ago, and we now expect sales to double every year for the next few years." Sales of the 2900 are expected to reach \$150 million this year.

The AM2916 will have an instruction cycle of 100 nanoseconds, and can execute instructions in either 16 or 8-bit modes. It comes in a 48-pin package with on-chip coupled logic internally, and TTL converters on all inputs and outputs.

To provide adequate chip storage, 32 working registers are arranged in a single-port RAM architecture. A bit-slice microprocessor is an uncommitted arithmetic logic unit which can be microprogrammed with any desired instruction set, and they can be ganged together to produce a machine with any desired word-length. The new AMD part will be as equally attractive for people wanting to do emulations of 32-bit mainframes as it will be to 16-bit minis.

AMD intends to make the 2916 family comparable in size to that for the 2900, and parts under development for launch with the 16-bit chip include a sequencer and a register PROM.

Using a bit-slice microprocessor to emulate an existing machine usually involves some trade-offs between 100% software compatibility and speed. The advantages are clear if the success of AMD 2901-based processors like the Honeywell Level 623 and the Data General Nova-4 are any guide. The AM 2916 includes an instruction set for controller applications and can be used in industrial control, communications and modern applications as well as for data processing.

# Peripherals threat — call for a European lab

FACED with fierce competition from US-owned companies, and threatened by the burgeoning Japanese peripherals industry, European-based peripheral manufacturers can only be saved by drastic measures like the establishment of a European peripheral technology laboratory and development contracts from big European peripheral purchasers.

These are key points made in a study carried out for the EEC Commission and the three biggest EEC member countries by Mackintosh Consultants. The study identifies the major weaknesses in the European owned peripherals industry as the fragmentation of the industry and its resources; the failure to recognise Europe as a single high-volume market and the resulting inability to achieve production volumes high enough to provide the same economies of scale enjoyed by US and Japanese manufacturers.

The study asserts that attempts by individual European governments to support their indigenous peripheral manufacturers have perpetuated the fragmentation of the European industry.

The European laboratory proposed by Mackintosh would be funded by grants from EEC member governments and subscriptions from European manufacturers taking advantage of its development work. It would concentrate on key technologies in the peripherals field such as precision engineering, non impact printing, thin film recording heads and media, optional data recording, bubble memory devices and very large scale integration.

According to Mackintosh most of the peripherals used in Europe are built here. The problem is that about 80% come from firms that are US owned. They employ most of the 75,000 people in Europe directly involved in peripheral manufacturing.

Mackintosh believes that big European peripherals purchasers like banks, airlines and FTIs could help European-based manufacturers by specifying a range of

key peripheral products that will be required in the future.

The study comes to five volumes, two of which contain detailed recommendations that have been made available only to the EEC Commission, to the relevant government departments in France, West Germany and the UK.

But the three other volumes are generally available at £1,000 each from Mackintosh at Luton and cover the European peripherals market, worldwide trends in peripheral technology and the worldwide peripherals industry.

Bob Willis, treasurer of the Association of the European Peripherals Industry, the body set up to promote the interests of European manufacturers, was not prepared to comment on the recommendations made in the Mackintosh study, but said that they would form the basis of discussions between the Association and the EEC Commission. See Computerview, page 2.

● BIS Ltd is acquiring what has been described as "a substantial shareholding" in Jan Mackintosh International, the group that includes Mackintosh Consultants. BIS executive director, Colin Walpole, is joining the IMI board. See page 5.

## DIGICO COMPUTERS the best OEM system?

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JOB OPPORTUNITIES PAGES 26-27







## OP SPOT



SPOT THE HAT: In the picture on the left, Andy Bone, a CAP-CPM programmer, is wearing his operations hat. On the right he is back in the programming room working on Improva/DS.

by Paul Fisher



## The Viewdata Exhibition

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Following the phenomenal success of last year's show, The Viewdata Exhibition for Professional & Business People will take the whole of the exhibition area available at the West Centre Hotel.

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The exhibits envisaged at this year's show include: Editing equipment basic and advanced, monitors and user terminals, private viewdata systems and equipment, peripherals including printers, magnetic media recorders, light pens, graphic design aids and keyboards, accessories such as camera attachments, anti-glare sprays, screen hoods and masks, telephone lines, microcomputers for teleconferencing and other 'umbrella' activities and facilities, software services for advanced editing, public line, semiconductor devices and many more.

The Exhibition Manager, Mr. J. and Mrs. J. will be at the exhibition from 10.00 to 5.00 p.m. on the 29th, 30th and 31st October. Tel: 01 837-3898. At Bowling Green Lane, London EC1R 6NE.

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## Dual role for six proves a success

JOHN Blinn is technical manager of CAP-CPM in Richmond, Surrey. "The main thing we do here," he says "is to develop mainframe software." And added: "We felt that due to the nature of our use of our new Magnuson M804 we could get the best results by operating it ourselves. Therefore, we don't have any operators as such."

This wasn't quite what I wanted to hear on my first site visit for Op Spot. I had not expected that an attempt to discover the ways of operators would threaten to twist into an applications programming story.

In practice, CPP's absence of operators staff means that six of the 30 employees at Richmond are authorised to double up as operators under the watchful eye of an operations supervisor, Gary Turner.

### Career

There are many ways an operator's career can go. It can lead to programming or to a supervisory role in the operations room, and maybe to an eventual management position. Alternatively it can lead to plain insanity. In Gary Turner's case it has led to an operator's post with a broad job specification for which he is particularly well qualified.

He started his working life as a draughtsman and then became a Cobol programmer with Data Solvers. Applications programmer, he says, "just wasn't me." So, somewhat unconventionally, he made the move into operating, where he spent four and a half years rising up as a shift supervisor. The joined CAP at the end of 1978 and support and has been working with the Magnuson since April 1979.

His role extends beyond that of a conventional operator. He is responsible for scheduling machine availability, arranging demonstrations, general problem handling, liaison with the hardware vendors and is involved in the consideration of future upgrades.

Captain of the local football team, he says that he is not responsible for the machine's operation but for its maintenance.

Perhaps he's also got his eye on a seat on the board. The computer works conventional office hours and is called upon for a couple of evenings a week. Gary Turner is delighted that he no longer has to do night shifts and is satisfied with his relationship with the programmers at CPP. "It's good to have people who understand the system and are familiar with such things as power-down procedures," he says.

### Restriction

From a technical point of view most of his work is with JCL and utilities. He has to cope with a variety of operating systems and says that he prefers to work with MVS/JCL rather than DOS/JCL because the former tends to help itself more. However, he reckons that MVS is not so interesting because it does not demand so much involvement.

The Magnuson is scheduled to run OS in the Morning - MVS, VSI and VM - and in the afternoon it runs DOS/VSE. Program lists can be OS and DOS, the major restriction being that tests have to be carried out in the allocated time slot.

If Gary Turner is not available to load the system one of the programmers can do so. Because of the fact that the current batch of CPP packages is being prepared in Assembler on a machine handling a number of operating systems, it is vital that Gary Turner has a basic understanding of Assembler. Andy Bone is one of the programmers who also acts as an operator at the Richmond site. He works under OS and so has his machine time in the morning. He is happy to load and run the system because an involvement in the development of the kind of product he is working on.

### Project

His current project is the Improva/DS (Displacement) package which provides a method of data control and data placement. It is a very simple package, but it is very effective and the interface

accessed ones are migrated to tape. Andy Bone spends most of the day at his terminal using Roscoe rather than in the computer room. However, development of the package inevitably means that he has to spend a certain amount of time running backwards and forwards making tape mounts.

When asked if his role as a part-time operator had changed his attitude towards ops staff, he said that he had never felt particularly antagonistic to them in the first place. He continued: "If you are responsible, you've got your self to call an idiot."

The Computer Program Products arm of CAP deals with mainframe software products. It markets 10 ADR packages and is working on the development of the Improva family which is designed to maximise efficiency in OS and DOS installations.

### Spooky

Among the people at CPP there seems to be an almost spooky degree of unanimity about the virtues of the Magnuson M804. It is the first machine of its kind in the UK and is supported by CDC disc drives, STC disc and tape drives, a Documentation unit record and Data



Gary Turner and John Metcalf in the computer room at CAP-CPM in Richmond, Surrey.

### Logic terminal equipment

The whole degree of concentration placed on the software development brings it up to a level comparable with the hardware, and together they produce a completely balanced system. Metcalf's claim is that this is the first time any company in the world has produced totally interactive software packages within a business system. To the user it means that no manual transference of data is necessary, and current

standards of profit, loss and balance are available at any time. At the heart of the software design is a basic rule of auditing: assets plus expenditure must always equal income plus liabilities. For example, to start up a manufacturing business, the company needs to borrow, say, £1,000.

This implies equal liability and asset. When stock is bought, the company must still be balanced, and Metcalf's business system will perform double-entry book-keeping to ensure that this happens. The sales ledger is linked within the software to the purchasing ledger.

### Efficient

Development and testing takes up 95 per cent of the Magnuson's time, although some back work is considered as a possibility for the future.

Programmer intervention doesn't usually amount to any more than mounting the tape of getting a quick printout. As it is not a production environment there is no real call for a full-time operator.

CPP has hit on the most efficient compromise by spreading the responsibilities around and demanding that its programmers understand ops and by appointing operations supervisors who understand programming.

## MICRO NEWS

## Hardware picked to fit software

IT'S the software that matters now, not the hardware. This point has been made several times over recent months.

System design used to involve the development of a piece of hardware, and following this, software to support the hardware. Now, because hardware design has almost reached perfection capabilities, the roles should be reversing themselves. Hardware must be specified within a system design primarily to support the software.

An example of this theory put into practice is a business system that was launched earlier this year by a newly formed Birmingham-based company called FIBS, Fully Integrated Business Systems (CW, April 3).

John Metcalf, managing director of FIBS, developed his first business system by initially drawing up a flow diagram of the type of software required for business applications, and then choosing hardware that supported it.

### Reliability

At the moment it is a single-user system but FIBS is developing a new package in multi-user Basic to provide a three-user capability.

Thus, the hardware required to support the software has been defined in terms of memory capacity and flexibility. The system must have 64K of RAM and a dual floppy disc drive, and preferably have a hard disc drive and a multi-user capability.

Metcalf made his choice around these specifications with a basic consideration of system reliability. The hardware system he chose to support his software was the Data Terminal and Communications MK10 microcomputer, which is based on Intel's 8080 8-bit processor and has 64K of user RAM. It incorporates twin floppy drives of 315K-bytes each, with optional one or two 10-megabyte hard disc drives and 8K of system ROM. With three I/O ports it costs £4,576 plus £236 for a fourth. The hard disc drive and interface is an extra £3,042.

### Printers

DTC also supplies a range of four printers compatible with the MK10: the 200 RO printer, which costs about £1,700; the 302 RO printer for about another £50; and the 382 T and V printers, which cost about £2,200 and £2,700, respectively. Metcalf chose the Hazeltine 1500 video and keyboard for £765.

Each software package costs £750, making a total of £5,250 for the complete set of seven packages. An optional word processor is available for £250. So a typical price for a complete system is about £15,000. Similar competitive business systems that seem to lack the simplicity and flexibility of the FIBS system are more than double this price (CWL has quoted £35,000). Metcalf sees "very little serious competition" at the moment.

FIBS also provides customers with tailored systems to suit specific requirements for a basic £500 extra per system. According to Metcalf this is very much in demand as there are so many possible applications for the system arising from several existing and new types of businesses. British Leyland is showing interest for its BL Systems network of dealers.

The latter takes about a week to ten days and involves a consultant being present for questioning during the installation.

FIBS controls the maintenance service by providing a telephone answering service and then running a diagnostic disc through the faulty system to detect the problem area. Any hardware problems are directed to DTC, and software problems, if they occur, to Coopers & Lybrand.

### Dealers sought

The type of hardware service provided is an eight-hour response time at a cost of 14 per cent of the system value a year. Metcalf hopes eventually to have one service engineer for every 14 systems installed. Coopers & Lybrand offers a £200 a year insurance back-up service, but this is not recommended in the FIBS package, as the software is parameter



John Metcalf, managing director of FIBS, claims to have produced the first fully integrated business system which implements completely interactive software and can provide balance, loss and profit information at any time.

driven, and these can be altered. Metcalf is currently organising a six-branch dealer network throughout the UK. Potential agents are vetted closely and must be able to talk in accountancy language. Reeves Computers of Carmarthen has already been appointed as dealer in Wales, but Metcalf is still looking for dealers to cover Scotland, the North East, the North West, the South and London.

But plans do not stop there. For the future, the FIBS business system will be faster. DTC is about to launch its 8085-based Micro 210, which is fully compatible with the FIBS software, the MK10 and the original Microfile. Micro 210 will cost £3,000, putting it in direct competition with existing systems in the small business systems market.

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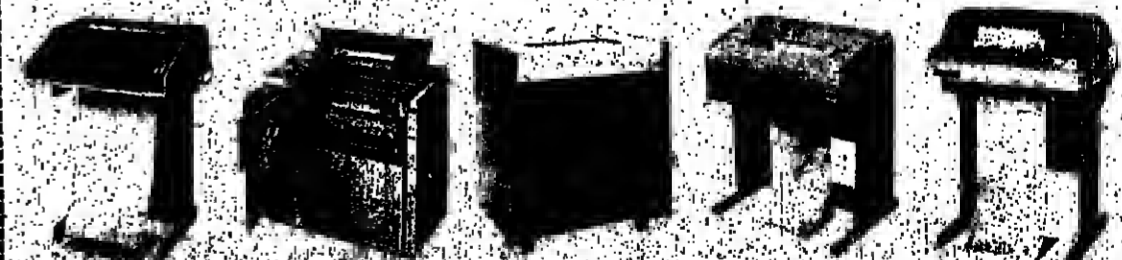
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## PEOPLE and EVENTS

## IBM names new director of data processing

IBM UK has a new director of data processing. He is Peter Morgan, who succeeds Tony Cleaver. Morgan is returning from IBM Europe, where he was group director of data processing marketing.

Born in Glamorgan and educated at Llandover College and Trinity Hall, Cambridge, Morgan served in the Royal Signals as a second lieutenant. In 1959 he joined IBM UK as a sales

trainee. He held several line and staff management positions in data processing before being appointed data processing sales director in 1971. He became group director of data processing marketing for IBM Europe in 1975.

Morgan is a member of the Institute of Directors, the British Computer Society and the Institute of Marketing.

## BETA jubilee awards

THE Business Equipment Trade Association is to mark its diamond jubilee by making two special awards to the business equipment industry.

Prizes in the Personal section will be £300 for the winner and £100 for the runner-up. The Company award will consist of a trophy and a symbol for the company's use on letterheads, literature and other promotional media.

Entries for the scheme will be judged on criteria including expansion into new markets overseas, initiative in exports, the provision of trade literature in appropriate foreign languages and the re-design of products or packaging for particular areas.

The awards restricted to members and associate members of the association, will be announced in the spring of 1981.

For further information, contact Richard Harrington on: (01) 405 6233.

Peter Lloyd has joined A&A consultants where he will specialise in executive selection and recruitment in the data processing/word processor sales field. He was previously a divisional manager at Hodge Recruitment.



David Spicer, divisional manager of Computer Automation's Commercial Systems Division, is shown at the controls of his Piper Comanche 280. Spicer and his co-pilot, Victor Scrivens, have just achieved third place in the Kant Messenger Air Race. This was Spicer's first race, although he has been flying for seven years. The team's next competition is the Kings Cup which takes place on September 20 at RAF Finningly, Yorkshire, and is sponsored by the Daily Telegraph.

## MD for ITT Semiconductors

LUBO Micic has taken the position of managing director of ITT Semiconductors World Wide. He will be responsible for the company's activities, which encompass 3,500 employees and five plants in the US, France and West Germany.

Micic joined ITT in 1959, after graduating from Belgrade University. His first post was quality control engineer at Internatell, and in 1967 he became manager of its application laboratory. Between 1968 and 1974 he was product manager responsible for new product development and introduction. From

1974 to 1978 he managed all ITT Semiconductors' sales in Europe as marketing director.

In 1978, Micic was appointed director of marketing and business development for ITT Semiconductors World Wide, assuming the added responsibility of director for Internatell in 1979.

Gordon Essex has left his post as marketing manager for George Salter and Company, to join the interconnection systems division of Tekdata, as marketing manager.

## Golf win for ICL

ICL's golf team tied for first place at the Eastern Regional Final of the Bateman Catering Silver Cup golf tournament, with a team from Norwich Union Insurance.

With an aggregate Stableford score of 92 points over the course at Bury St Edmunds Golf Club, ICL achieved first place by virtue of its score over the last nine holes.

The team members are Frank Ward, a personnel officer, Frederick Munn, a section leader and Ray Kitchener, an electrician.

ICL has now qualified for the national final which takes place from October 24-26, at Gleneagles Hotel, Scotland.

## Winning robot

A PROJECT to design, construct and program a self-contained robot won a prize of £50 for Michael Wynne, a final year student at North Staffordshire Polytechnic.

Wynne's robot was purpose built for the project, and its key component was a Motorola 6800 microprocessor unit. The robot could operate at various speeds, carrying a small payload and was able to follow a dark line on the floor, automatically steering away from walls and obstructions.

The award for the project was given by BIS Applied Systems, to encourage undergraduates in their practical course work.

Two other cash prizes were awarded. The second year prize was won by S Crothers and the first year prize by A Farrell.

John Farthing has been appointed general manager of Geat Multicomputer Systems. He was formerly marketing director for the micro division of ACT.

Roy Hamilton has become sales manager of General Computer Systems UK. He joins from Roddion Computers where he headed its UK field marketing organisation for three years.



## PA senior consultant

ALAN Hetherington has been appointed senior consultant with Management Consultants. He joined the company in 1977, and is a Fellow of the Institute of Chartered Accountants and an Associate Member of the Institute of Management Consultants.

Tamela Honey has been appointed to the newly created post of product manager at Advanced Business Technology Inc.

## Football tournament

FIVE-A-SIDE football tournament is being organised in the North of England by CPR Consultants and the agency want 32 entrants - 16 each from Leeds and Manchester.

The tournament will be held as a group and knock-out basis and there are three titles to be won: Best team, Best player and Best referee.

Those interested should contact: Bacon, CPR Consultants, 12 Mole Street, Manchester M2 3AQ. Tel: (061) 228 1354.

Data Logic has promoted Nigel Slogrove to sales manager in its word processing division, Central London. He joined the company in 1979. Slogrove is a former squadron leader in the RAF, and a member of the Institute of Purchasing and Supply.

Seven months after joining Sime as area sales manager in Bristol, Paul Packwood has been promoted to regional sales manager.

**Liveware File** by Don

I WENT TO THE NORTH OF SCOTLAND... BY HIGH-SPEED TRAIN FOR MY HOLIDAY...

DID YOU HAVE TO CHANGE? YES - JUDGING BY THE TEMPERATURE AT JOSEPHSON JUNCTION.

**DIARY**

**SEPTEMBER 24**  
New technologies for information retrieval. BCS Information Retrieval Group, London.

**OCTOBER 6-7**  
Seminar: Digital communications for satellites. Technology Transfer Society (TTS), London. (01) 242 4045.

**OCTOBER 9-10**  
Seminar: Digital communications for satellites. Technology Transfer Society, Amsterdam. (01) 242 4045.

**OCTOBER 13-14**  
Seminar: Digital communications for satellites. Technology Transfer Society, Munich. (01) 242 4045.

**OCTOBER 15-16**  
Seminar: International technical marketing. Technical Marketing Society of America (TMSA), London. (01) 242 4045.

**OCTOBER 17-18**  
Seminar: Digital communications for satellites. Technology Transfer Society, Berlin. (01) 242 4045.

**OCTOBER 22-23**  
Seminar: Satellite communications. Satellite Communications Association for Communications Engineers (SCACE), London. Tel: (080) 224 0000.

**OCTOBER 29**  
Seminar: Project management. British Computer Society, London. Tel: 24166.

**OCTOBER 29-31**  
Viewdata Exhibitions for Professionals and Business People. ITC Exhibition Centre Hotel, London. Tel: 837 3536.

**COMPEC 80**  
The 8th annual conference of the Computer Professionals' Association (CPA) will be held from November 4-6 at the Grosvenor Hotel, London. The exhibition is sponsored by CPA and will feature a wide range of computer products and services. Further information can be obtained from CPA, 11, Abchurch Lane, London EC4N 3DF. Tel: 01-404 1211.

## IBM making up lost ground in WP

THE IBM Displaywriter word processor has arrived in the UK less than two months after its US launch. The stand-alone word processor, built around the Intel 8086 16-bit micro, has a UK base price of £5,000, about 50% higher than the US base price at the present rate of exchange, but still very competitive indeed.

At the same time, IBM's Rolls Royce of shared logic word processors, the 5520 (see picture), based on the processors used in System 34, has been launched a more usual nine months after its US debut.

The two products spearhead IBM's drive to make up lost ground in word processing, particularly in the US, where it is a clear number two to Wang (CW, June 26).

## Striking

The elements of the modular system include the display, tiltable 20 degrees and rotatable 30 degrees, separate keyboard, single or dual floppy drive and two printer options: a 15.5 cps golf-ball and 40 or 60 cps daisywheel.

Technically the most striking feature is the 50,000 word dictionary, which by use of an amazing algorithm called Alpha Word Vector chops words up into prefixes, suffixes and particles so that 50,000 words can be crammed into 20K-bytes of main memory. Loadable from a floppy disc and with space for 500 user-defined words, the dictionary is available in English, American, French, German, Italian and Dutch.

Once a document is prepared on the screen, the operator can call up the dictionary which highlights all words which it does not recognise. These will mostly be misspellings, bad proper names, and the operator can go through and correct them and call the dictionary again to ensure they are correct. It is, of course, only an aid and cannot supplant careful reading through: it will not pick up words omitted altogether or errors like "noon" for "not".

The Displaywriter - like the 5520 - has a green display, 25 lines, with facilities to move text forward and back, to copy, to locate a particular word rather than having to find it with the cursor. It does a system checkout on switch-on and puts up the IBM logo when it is ready.

Printers can be shared by up to three Displaywriters, each of which has to have its own local floppy unit, either 284K-bytes or one megabyte, with a twin floppy option. All the system software goes into the minimum 160K-bytes of main memory, theoretically.

## Mailbox service

EUROPE's first publicly available, international mailbox service is being launched this week by Services 800, the international toll-free telephone service provider. This will enable the mobile businessman to deposit and collect messages, irrespective of office hours, via a portable terminal and a phone call to his home or office.

Called DataMail, the service is based on the Comer mailbox software and used in the US by Inter Corporation of America. It is operated under Radio Suisse, the Swiss database access service based on the Swissair 1170 communications centre in Zurich. Swiss users use the same access point for DataMail as for the Swissair database access service, switching mode which connects to Telenet and Telenet in the UK and Datapac and Infowatch in Canada. DataMail can be accessed from North America via these networks.

Communications are at present confined to asynchronous or bi-synchronous, but SDLC is in the pipeline.

A minimum working configuration costs £5,000 plus £9 a month for any one of the five standard software packages offered, and first deliveries are set for February 1981.

## Opportunity

The 5520 and the Displaywriter already support a magnetic card unit compatible with the cards used on IBM's magnetic card typewriters, and the Displaywriter can be used as a terminal to the 5520, but only through a communications port.

The statement gives users the opportunity to press the company to provide what they really want: it is a multi-faceted machine that the 5520 is clearly a more attractive word processor than the 3730 from DPD and is a true SNA device, users who want to manipulate data on the 370 host under, say, TSO have to choose the 3730 - or run the software on an 8100 under the DPCX operating system.

It is an attractive system for electronic mail, featuring store and forward, auto call, auto answer, distribution lists, priority and particular time of day letter dispatch and delivery confirmation.

Although it is an SNA device, using SDLC internally, only limited support is given for access to databases on IBM host mainframes under IMS or CICS.

Communication is also supported with the 6670 intelligent copier.

Most noteworthy feature of the 5520 from the user point of view is the extraordinarily comprehensive set of prompts which are available to explain to the operator exactly how to use the machine.

These run to 2,500 screen pages which can be called up at the press of the "help" button.

Since the only printer available is the Ink-Jet, the operator is able to call up a wide variety of type styles and spaces from the workstation. In general this would involve changing the wheel on a daisywheel printer.

IBM has also now made its Statement of Direction on word processing in the UK.

This says that over the next three years, freedom to mix and match the word processing products from the Office Systems, General Systems and Data Process-

ing Divisions will regularly be improved. Salesmen are to be encouraged to propose the most appropriate solution to each customer regardless of which division supplies it.

These discrete devices will use a planar vertical VMOS structure, a design approach which eliminates problems created by V and U groove techniques. Electric fields at the bottom of the grooves limit breakdown voltage performance.

Application areas include microprocessor and logic interfac-ing where VMOS high power gain allows direct interfacing to high current/high voltage loads, switching power supplies and power output stages for multi-frequency amplifiers.

Ferranti's Brian Dowd says, "The company has a commitment and intention to stay in discrete."



The Rolls Royce of shared logic word processors, IBM's 5520.

## Ferranti in VMOS deal with US firm

FERRANTI Electronics has signed an agreement with Supertex Inc of California to manufacture VMOS power field effect transistors.

These discrete devices will use a planar vertical VMOS structure, a design approach which eliminates problems created by V and U groove techniques. Electric fields at the bottom of the grooves limit breakdown voltage performance.

Application areas include microprocessor and logic interfac-ing where VMOS high power gain allows direct interfacing to high current/high voltage loads, switching power supplies and power output stages for multi-frequency amplifiers.

Ferranti's Brian Dowd says, "The company has a commitment and intention to stay in discrete."

According to a recent report, where the American designer will use a big chip, the European counterpart will try to optimise by using the full range of available products.

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This ICL ME29 workstation is used as an input/output and inquiry terminal for the Salome (input self-sufficiency) system. A videotape terminal is in the background.



## Companies come to the aid of the Army's intelligence

by Paul Fisher

GROUCHO MARX once commented that military intelligence is a contradiction in terms. The Directorate of Supply and Computer Services, DSCS, of the Royal Army Ordnance Corps wants to spend over £1 million to prove that the remark is not true so far as the military's computer intelligence is concerned.

The DSCS has been staging a ten-day demonstration, named Ocelot (Operational Control Environment for Logistics and Office Tasks), to show off the capabilities of existing computer power and to prove that further expenditure is justified. The exercise brings together ten inter-related management information projects which are designed to cope with normal and emergency supply procedures.

### Thin budgets

Although the overall military budget has been increased by 3 per cent in real terms, individual units find they have to convince MoD top brass of a scheme's validity before any money is forthcoming. Additionally, there is a three-month moratorium on military expenditure, which still has two months to run.

Brigadier Lawrence, of the DSCS, says: "Expense budgets these days are thin. Therefore we try to test out the practicality of our systems before putting any proposals to central government." Ocelot is a demonstration of such a proposal. What is remarkable about it is that it largely being staged with borrowed equipment. Whether in a spirit of unbridled generosity, or due to a judgment that orders will eventually be placed, ICL, Systems Production of Farnborough and Radio Rentals have loaned the Army a considerable amount of equipment in support of Exercise Ocelot.

To secure a contract worth £1 million at the price ICL has lost £120,000, the hardware. This includes two 7502 cluster display terminals, six VDUs and two 7700 word processors which are used for the production of briefs and reports and the screening of charts. An ME29 computer provides a videotape service (on Radio Rental VTA) and also runs a stock control system called Salome.

In the event of a major computer breakdown or communication failure, it holds details of 117,000 vehicles on its database, although for the purpose of Ocelot between 15,000 and 20,000 of the Army's classified vehicles are not included.

Four of the Ocelot demonstrations, with the acronyms Sirocco, Silver, Astrid and Roland, are supported by a mainframe site and a half mile away from the DSCS Greville Hill headquarters in Arncott. The site has two ICL 1900s, a 1906A for classified information and a 1904S.

Of particular interest to commercial users is the Astrid demonstration. It works in conjunction with a TP monitor to access and update information concerning ammunition components in real time.

Much of Ocelot is based on the £1.5 million Crusader exercise in a backdrop. It is supposed, for the purpose of some demonstrations, that a ten-wagon train carrying ammunition has exploded near a place called Bad Brecht. Thus, for example, Astrid is able to identify possible causes for the accident.

### Boring

There are two supporting demonstrations code-named Coffer and Safari. Coffer is a rugged mobile system using £30,000 worth of equipment loaned from Systems Production Ltd. It is used with the movement of troops required by a division in the field. The words of Lt-Col Bering, who is heading the project, are: "It is clerically intensive and boring."

The project will use the processor from Systems Production, Winchester storage and fibre optic links. Pending central government approval, all the Ocelot systems will be operational within the next financial year. The scope of the demonstration and the speed with which it had been mounted was impressive. To take one example, 135K of Cobol code was prepared in three weeks by Coffer demonstrators. The Astrid database will be a reasonably accessible which would be vital should an emergency arise.

## This is the biggest battery in Britain....

WITH 415 cells, the largest battery to be installed in Britain has been commissioned at the National Westminster Bank's computer centre in Kegworth, Leicestershire. The Elco 500 Chloride Flood battery is part of an uninterruptible power supply from Anton Piller of Cirencester, Gloucestershire. The battery is able to support all the centre's essential functions for five minutes until auxiliary generators are brought on to full load. The National Westminster's Kegworth centre houses three IBM 370/188s which run a number of applications including branch accounting.



## Helping the GP with his work

A PATIENT recording system for general practitioners that should help them ensure that regular treatment is always carried out when needed, has been launched by ABIES Informatics, using South West Technical Products hardware. Optional extras include word processing and the Miekie patient interviewing system devised at the National Physical Laboratory.

The ABIES system does not record the doctor's notes, but keeps registration details and acts as an index to the written files. In addition, up to 64 "characteristics" for each patient are recorded by the doctor on a card, detailing certain diseases and conditions that need to be checked regularly. These are entered by a secretary into the system, and automatic reminders are then produced.

### Doctor pays

The smallest configuration, with floppy disc storage for 6,000 patients, costs £5,000, and a system with hard disc, daisy-wheel printer and Miekie costs £9,500 and has capacity for 65,000 patients.

Future facilities will include a prescribing system which will print out and keep track of prescriptions, and "event recording" to help analyse a GP's workload and provide data on the spread of diseases.

The purpose of the system, according to Tim Beeson of ABIES, is to help the doctor with his work, not to save money, as clerical staff are largely paid for by the Health Service. The equipment would have to be paid for by the GPs themselves.

Miekie is being sold under licence from the NPL (CW, June 12). The WP package is Autotext, already in use with SWTP micros.

Part of the SWTP hardware for the ABIES patient recording system (see story, right).

## Upgrading to NCR 1-8430

THE Bristol-based JT Group is planning a move from its current NCR 1-8250 to the more hefty 1-8430. Delivery of the £113,000 package is scheduled for October 1 and the system is expected to be running by mid-December.

The JT Group is a construction company which also owns five residential country clubs. It uses DEC PDP equipment for administration and finance.

The 1-8430 has a 512K memory as opposed to the 128K of the 8250. It will take on accounting and contract costing and handling 25,000 club members' records.

Upgrade work will be dealt with in-house using NCR conversion programs. John Proven of the JT Group reckons that conversion should take an average of half an hour per program. "It's a simple migration," he says.

## System that speeds up courts' administration

CRIMINALS in and around the Oxford area are finding life much harder and the strong arm of the law even stronger these days.

Oxford Magistrates' Court has installed so Allied Business Systems' Police and Magistrates' Courts Computer System to speed up the administration of criminal cases.

Based on the ABS Multibus microcomputer, the system controls the entire administrative process, from booking the defendant at the police station to his eventual processing in court and the enforcement and collection of any fines.

The system at Oxford, Bunzl denial

BUNZL Data Systems of Leighton Buzzard, Bedfordshire, has asked to point out that it was registered no interest in the work and has made no bid to the Magistrates' Courts' Computer System. Bunzl is a subsidiary of the Bunzl Group, for the assets of the firm or any company.

Magistrates' Court cost £80,000 and has seven terminals, two of which are in the police administration office and five in the court building.

Information about the defendant and alleged offences is entered by police and court staff on a question-and-answer basis and may be updated at any time up to the day of the hearing.

After the hearing, court staff enter adjudications via the terminal. Fine notices, court orders and adjournment notices are printed, and credit and debit accounting details are set up.

The various types of account - fines, fees, maintenance and so on - are held by reference number or name, and money received is allocated far more quickly than on a manual system.

### Yearbook

THE Council for Mutual Economic Assistance (Compaq) 1979 Statistical Yearbook is available for £25 from IPC Business Press, 40 Rowling Green Lane, London EC1 1NE. Tel: 01-437 3636.

## Canada feels slighted by British Telecom announcement

CANADA'S Department of Communications has complained to British Telecom about its announcement on the adoption by CCITT of the UK's Prestel and France's Teletel videodata systems as international standards (CW, July 3).

The DC said the announcement implied that Canada's Telidon system had been ignored.

Replying for British Telecom, deputy managing director John Whyte told the DoC in a telex message that they had misunderstood the press release and denied that it contained any errors of fact.

Whyte said that two standards had been adopted for alpha-numeric systems, but under alpha-numeric systems Telidon had been cited as an example. He pointed out that as Telidon had not been proved in the field it had not been subjected to the same degree of scrutiny by the many experts participating in the Montreal meeting where the standards were adopted.

There was a clear inference that alternative schemes may be considered. In contrast, 10 telecommunications administrations had adopted Prestel-type coding schemes for their videodata trials or services.

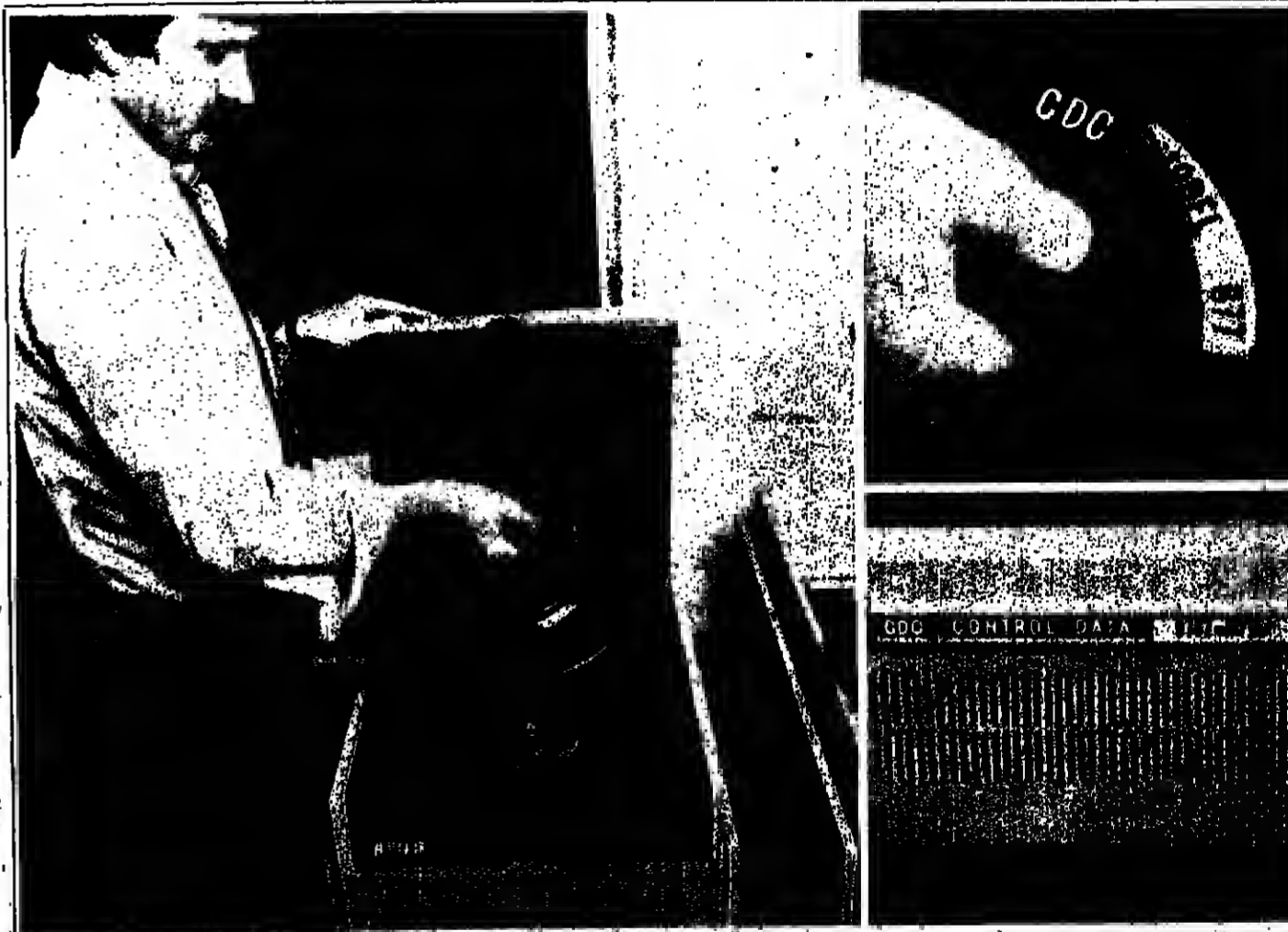
The DC has asked the Canadian government for 50 million dollars to market Telidon at home. Last year, 9 million dollars was awarded for research and demonstration projects.

The DC said the announcement implied that Canada's Telidon system had been ignored.

WEST Germany's Bildschirmtext videodata system is due to extend its market trial at the end of this month to include access to privately operated databases, following delivery of computer networking software providing X.25 and IBM 3270 communications protocols developed by Systems Designers to run on the GSC 4082s in Düsseldorf and Berlin.

### Extended

CLYDESDALE Bank plans to extend its Autobank online banking service to include all of the bank's 350 branches. Autobank provides 24-hour online banking via teller units linked to eight computer centres.



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## COMPANY NEWS

## Controlling the money supply not enough

THE government's long-term economic strategy is beginning to look like a reflection of the hoary old chestnut about the Irishman who, when asked the way to an elusive destination, advised, "If you want to get there, sorry, I wouldn't start from here."

The policy to control the money supply is clearly working, perhaps, rather too fiercely and a little too well on the private

## COMMENT

sector, but the overall aim, which is to get inflation down to low single figures, looks as far off as ever it did.

The most significant single element which is pushing in the opposite direction is the public sector, as telecommunications users, consumers and anyone who has to pay a gas or electricity bill knows to his cost.

Private sector price rises, whether directly as a result of government policy or simply as a result of the recession, are moderating rapidly, and anyone in the

fortunate position of having only spare cash can have a flood day in the high street.

But because the most nationalised industries can only remain solvent by either increasing the money supply by cutting to government debt, or putting up their prices, the government's strategy insists that they have to do the latter. Yet the public utilities represent such a substantial element of the retail price index, which although inadequate is the only measure we have of inflation, that their price rises can cancel out the best efforts of the private sector.

Few people would now deny that nationalisation of steel and shipbuilding were monumental mistakes from almost any viewpoint, making the task of government of whatever complexion well-nigh impossible.

Until the Post Office, the public utilities and industries like shipbuilding, steel and so forth are operating like genuine commercial organisations, the "experiment" with monetarism is bound to appear to fail without ever having had a genuine test.



Delta Data Systems, the programme display terminal manufacturer, has set up a subsidiary based in Brussels to cover the Benelux countries. Called Delta Data Systems Benelux SA, the subsidiary is Delta's first in Continental Europe and will concentrate initially on selling the Delta 2830 which emulates Burroughs TD830 displays with additional features.

The 2830 has been chosen as the first product mainly because its installation does not require systems assistance for the customer. In addition there is a high level of demand for the 2830 because it can be supplied immediately.

The Benelux subsidiary is currently being provided with full technical, commercial and marketing support by the Delta Data Systems UK subsidiary.

Delta is still represented in the rest of the Continent by distributors, although Delta has long-term plans to set up subsidiary companies in France, West Germany and other countries.

## New broom at Centronics

IN the wake of disappointing results for its financial year ended June 30, printer manufacturer Centronics is undergoing substantial re-organisation at the hands of Michael Kaufman, the man who took over as president in April. But Kaufman has not touched the Centronics organisation in Europe, which now accounts for about 40% of total worldwide turnover and which provided most of the profits in the last fiscal year.

Fenner Xerox Corp executive Kaufman has named six new vice presidents, three of them being men brought in from Raytheon and Xerox to fill the new positions of senior vice president of operations, senior VP finance and VP of planning.

In addition, Kaufman has divided the company into three product-based groups. They are the microcomputer printer division, which embraces the 100 chips 80-column 730 series launched a year ago, industrial printers, which covers the faster, more expensive units used with minicomputers, and the Quietwriter division which is devoted to the innovative low-speed word processor printer first described last year (CW, November 29, 1979). Quietwriter employs a stylus print head which forms characters in a similar way to writing with a pen. It should be launched in the first half of next year, probably at the National Computing Conference in Chicago in May.

Centronics is also developing faster printers for the word processing market, employing print heads with a high density matrix. Centronics figures for the year ended June 30 include net profits slightly down on the previous year at \$18 million and sales up 8% to around \$130 million. The company's full performance has been blamed on technical problems with the 730 series printers which

forced Centronics in the US to close down the production line for these units for a period of about six weeks earlier this year. In addition, the US side of the company is burdened with most of the cost of developing products like the Quietwriter.

Production of 730 series now stands at 350 a week and this year's projected total output figure is 75,000.

The industrial printer division manufactures the 790 series of high speed matrix units and the 6000 band printer family which incorporates print mechanisms built in Japan by Hitachi.

## Kode aims at £10m turnover

ANNOUNCING gross profits of £662,405 on a turnover of £4.62 million for the first 24 weeks of 1980, Kode International says that it is confident that its turnover will top the £10 million mark this year.

But according to a company spokesman the capital goods division of Kode which builds and sells computer terminal equipment has now been overtaken in turnover by the components division. The latter consists of PC board manufacturer Kam Circuits, and military equipment builder, Moore Reed.

The capital goods division comprises Kode Ltd and Kode Services and a major source of its revenues now is the XL140 multi-terminal key-to-disk system built in the US by Per-tec. The Datavet data entry system built by Kode itself at its factory at Calne, Wiltshire, is being phased out.

But the Kode spokesman said that no more redundancies at

Calne were likely following the staff that were shed earlier this year (CW, March 13) because there was still plenty of work for the remaining personnel. Some of them were still involved in building card punches and a few were busy extensively modifying the Teletype ASR43 matrix printer terminals that Kode supplies to the Department of Health and Social Security. In addition there were customising of XL140 systems to suit individual customers.

Kam Circuits, which is based at Calne, is now the largest growing part of Kode International. It manufactures PC boards for customers that include Plessey GEC and the Post Office and many computer companies in the UK. Factoring operations in the US, Kam is setting up a multi-layer PC board production line similar to the ICL operation in Manchester (CW, June 26) only on a smaller scale.

## CW SHARES TABLE

Dow Jones				Index			
1980	1979	1978	1977	1980	1979	1978	1977
High	Low	High	Low	High	Low	High	Low
43	28	42	27	100	80	100	80
44	29	43	28	101	81	101	81
45	30	44	29	102	82	102	82
46	31	45	30	103	83	103	83
47	32	46	31	104	84	104	84
48	33	47	32	105	85	105	85
49	34	48	33	106	86	106	86
50	35	49	34	107	87	107	87
51	36	50	35	108	88	108	88
52	37	51	36	109	89	109	89
53	38	52	37	110	90	110	90
54	39	53	38	111	91	111	91
55	40	54	39	112	92	112	92
56	41	55	40	113	93	113	93
57	42	56	41	114	94	114	94
58	43	57	42	115	95	115	95
59	44	58	43	116	96	116	96
60	45	59	44	117	97	117	97
61	46	60	45	118	98	118	98
62	47	61	46	119	99	119	99
63	48	62	47	120	100	120	100
64	49	63	48	121	101	121	101
65	50	64	49	122	102	122	102
66	51	65	50	123	103	123	103
67	52	66	51	124	104	124	104
68	53	67	52	125	105	125	105
69	54	68	53	126	106	126	106
70	55	69	54	127	107	127	107
71	56	70	55	128	108	128	108
72	57	71	56	129	109	129	109
73	58	72	57	130	110	130	110
74	59	73	58	131	111	131	111
75	60	74	59	132	112	132	112
76	61	75	60	133	113	133	113
77	62	76	61	134	114	134	114
78	63	77	62	135	115	135	115
79	64	78	63	136	116	136	116
80	65	79	64	137	117	137	117
81	66	80	65	138	118	138	118
82	67	81	66	139	119	139	119
83	68	82	67	140	120	140	120
84	69	83	68	141	121	141	121
85	70	84	69	142	122	142	122
86	71	85	70	143	123	143	123
87	72	86	71	144	124	144	124
88	73	87	72	145	125	145	125
89	74	88	73	146	126	146	126
90	75	89	74	147	127	147	127
91	76	90	75	148	128	148	128
92	77	91	76	149	129	149	129
93	78	92	77	150	130	150	130
94	79	93	78	151	131	151	131
95	80	94	79	152	132	152	132
96	81	95	80	153	133	153	133
97	82	96	81	154	134	154	134
98	83	97	82	155	135	155	135
99	84	98	83	156	136	156	136
100	85	99	84	157	137	157	137
101	86	100	85	158	138	158	138
102	87	101	86	159	139	159	139
103	88	102	87	160	140	160	140
104	89	103	88	161	141	161	141
105	90	104	89	162	142	162	142
106	91	105	90	163	143	163	143
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108	93	107	92	165	145	165	145
109	94	108	93	166	146	166	146
110	95	109	94	167	147	167	147
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113	98	112	97	170	150	170	150
114	99	113	98	171	151	171	151
115	100	114	99	172	152	172	152
116	101	115	100	173	153	173	153
117	102	116	101	174	154	174	154
118	103	117	102	175	155	175	155
119	104	118	103	176	156	176	156
120	105	119	104	177	157	177	157
121	106	120	105	178	158	178	158
122	107	121	106	179	159	179	159
123	108	122	107	180	160	180	160
124	109	123	108	181	161	181	161
125	110	124	109	182	162	182	162
126	111	125	110	183	163	183	163
127	112	126	111	184	164	184	164
128	113	127	112	185	165	185	165
129	114	128	113	186	166	186	166
130	115	129	114	187	167	187	167
131	116	130	115	188	168	188	168
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137	122	136	121	194	174	194	174
138	123	137	122	195	175	195	175
139	124	138	123	196	176	196	176
140	125	139	124	197	177	197	177
141	126	140	125	198	178	198	178
142	127	141	126	199	179	199	179
143	128	142	127	200	180	200	180
144	129	143	128	201	181	201	181
145	130	144	129	202	182	202	182
146	131	145	130	203	183	203	183
147	132	146	131	204	184	204	184
148	133	147	132	205	185	205	185
149	134	148	133	206	186	206	186
150	135	149	134	207	187	207	187
151	136	150	135	208	188	208	188
152	137	151	136	209	189	209	189
153	138	152	137	210	190	210	190
154	139	153	138	211	191	211	191
155	140	154	139	212	192	212	192
156	141	155	140	213	193	213	193
157	142	156	141	214	194	214	194
158	143	157	142	215	195	215	195
159	144	158	143	216	196	216	196
160	145	159	144	217	197	217	197
161	146	160	145	218	198	218	198
162	147	161	146	219	199	219	199
163	148	162	147	220	200	220	200
164	149	163	148	221	201	221	201
165	150	164	149	222	202	222	202
166	151	165	150	223	203	223	203
167	152	166	151	224	204	224	204
168	153	167	152	225	205	225	205
169	154	168	153	226	206	226	206
170	155	169	154	227	207	227	207
171	156	170	155	228	208	228	208
172	157	171	156	229	209	229	209
173	158	172	157	230	210	230	210
174	159	173	158	231	211	231	211
175	160	174	159	232	212	232	212
176	161	175	160	233	213	233	213
177	162	176	161	234	214	234	214



(DPM/ANGLON/AYARD)

# Disappearance of the office as we know it

BY the Middle Ages the middle-men of commerce, the merchants, had set up permanent dark and dirty little offices. Here the clerks and apprentices, who often lived in, recorded the transactions of goods that they never saw.

What has this to do with automation? you may say. But in an age when control of the human intelligence of the employee was automatic and precise, and the response servile and uncomplaining, was this much different from much expected of the current microelectronic proposals? The ensuing innovations, such as printing, blotting paper, fountain pens and pencils, and developing practices, bank notes and banking, insurance, harking, underwriting and so on were part of the expansion of office. Office jobs were created rather than lost.

In any case the white collar workers, as they came to be known, had even less pretensions to solidarity and corporate power than their manual colleagues. Even the humblest clerk saw himself as an individual. Whatever the innovation, there was no Luddite reaction.

## Assimilated

So the age of efficient postal services came, the cheap penny post, regular deliveries and letters and parcels delivered to all parts of the world.

The typewriters, ladies who could type, arrived not without some male chauvinist reaction, but

were assimilated over 20 to 30 years. The telephone and teleprinter introduced instant communication, but in conjunction with the postal service, better transport, wireless and newspapers they also encouraged the mass, monolithic reaction.

The growth of trade unionism in the offices has been slow compared with that of their factory colleagues, but it needs to be reckoned with in future.

So we arrive at the last 25 years, dominated by the television and the computer. The traditional balance of developments arising gradually from needs has been or so. Developments are now seeking markets and it is impossible to predict whether this will be a permanent trend. Since the manufacturing interests behind these are very powerful and the potential gains from sales are immense, effective choice is passing out of the hands of the user, be he the employer or the employee.

## Apprehensive

Popular demands, engendered by high pressure advertising, are encouraging the use of techniques without adequate appraisal of economic or social consequences. The influx of cheap computing is already making inroads into the numbers of accounts and cost clerks, and may affect accountants.

The current burning issue is word-processing. Trade unions are apprehensive and many employees

The practical implications of office automation was the subject of the Institute of Data Processing Management/Langton essay competition for 1980. This week we feature extracts from the second and third prize-winning essays. F. BOEUF of Abbots Langley in Hertfordshire, who won £100, foresees the emergence of Luddite trade unions, computer-aided computer fraud and a working population of machines. DAVID REED of CAP-CPP, whose prize was £50, describes a world of cottage workers, who leave their homes only to go on holiday.

have not and do not wish to acquire the necessary skills. Employees like the idea in principle and there have certainly been great savings in staff time, but will the ultimate effect be gain or loss?

It depends on how broadly this is judged. There are already signs that office workers are becoming more cohesive and that office unions and associations are becoming more powerful and more militant. They will not be able to stop the method being introduced but they can obstruct and if necessary abuse its use.

## Fragmentation

Computer fraud for personal gain is now a fairly well-established crime, albeit somewhat difficult to detect, and the politically motivated corruption of computer files is just as feasible. At present the overall effects are marginal, but with a trade recession, often traditionally more backward countries doing their own thing often more efficiently with better

equipment, and higher unemployment, what will be the impact in the next few years?

Telephone linking of conference rooms now allows meetings to be grouped at two places rather than one. This has so far not had any appreciable effect on office workers, but with closed circuit television one can expect to see the beginnings of fragmentation of the larger offices.

This trend can be expected to accelerate, given the high cost of office space and the cost and difficulty of commuter travel. Light-weight "paging" equipment allows the office worker, in common with everyone else, the freedom to move around while still retaining communicability provided that there is always a convenient telephone available. Now that restrictions on local broadcasting are being loosened, if not entirely removed, this must mean more use of totally portable, coat-pocket telephones.

Hand-held terminals allow the

keying in and storage of "on-site" data, ready for telephone transmission to the computer. These will further extend the "walls" of the office when they are sufficiently developed to be used for general commercial purposes.

The office of the future may well become something of a battlefield between conflicting interests, with the word "office" either disappearing or changing to a less precise, non-localised meaning.

At the core one might expect to see a primary, controlling computer, aimed to suit prestige or defence considerations with satellite microcomputer terminals in homes or in single person sub-offices. There is no reason why the sub-offices should be more than modest sized cubicles provided on the same basis as telephone boxes by the Post Office or hired out hourly, daily or as is needed, by private firms.

## Mobile offices

Data input options will be various; speech, keying in, or RAM. The transmission could include, as well as data and speech transmission, closed circuit TV.

Since weight and wires are an impediment to portability, the first will be reduced to a minimum, the second dispensed with altogether, using one or other of the various carrier wave possibilities. This will allow vehicles to act as travelling offices or in more limited circumstances for the human walking office.

On the reverse side, some of the employees will be attempting and probably attaining various kinds and degrees of frauds, secure in the knowledge that the powerful white collar unions to which by this time all "office" workers will belong, will certainly provide strong support. Cheating the computer is so impersonal that it could become an occupational disease, or an occupation itself depending on how you look at it.

[But] given the mania for collecting information that will undoubtedly arise, how do you prove that this or that set of it has been pirated or misused?

There are two possibilities. Either malfeasance is made impossible, or the wrong-doing is monitored and detected. In both cases the same computer could undertake security and in larger systems a dedicated machine could be used. On the one hand, one would expect security problems to be more easily solved as computer intelligence increases. On the other there is a possibility of equally intelligent computers being used to break into the system. With further intelligence, computers can correspond with each other in such a way that human intervention is virtually eliminated.

It is certain that more and more data is going to be collected and communicated. In theory the growing army of unemployed could be re-employed collecting it or assimilating it. In practice there will be more and more automatic collection of data, and there is reason why there should not be automatic assimilation and increasing amount of intelligent process control.

## New language

Is there scope for a new concept, an international machine language which is recognisable and more suited to machine intelligence? It would seem that, having removed the present concept of the office as a physically located and controlled entity and replaced it with something more tenuous and universal, it is probable that many if not all of its "workers" will be machines and not people. There are some years of "progress" ahead before this can happen. There will certainly be years of labour resistance which will delay but not stop the process.

# Devolution must come

THE office has been to the twentieth century what the mill was to the nineteenth or the cornfield to earlier times; the place that many people go to most hours of most days of most weeks. Not that the office is a novelty — justices and merchants had long been before the moneychangers' headquarters were lobbed from the Temple — but it has needed this century to turn the office into a way of life for millions.

It must be almost impossible to say anything original about communication as more has been written about the subject in the last quarter of a century than about politics or sex. Suffice it to say that all office systems were originally designed to communicate, and the desire of people to communicate with each other, distort and impede the intended processes.

## Nothing new

While the designers and inventors try to persuade everyone that office automation is a new thing — and the office worker feels that this may be true — the existing elements of office systems need to show their track records.

Today's telex machine strongly resembles that of World War Two. Data transmission networks between computers (or between computers and terminals) have been operating for a dozen or more years. Facsimile transmission goes back 20 years and microfilm or microfiche much longer — neither has exactly swept the market.

The automatic typewriter driven by a magnetised card or a paper tape (or two) is at least a decade old and the visual display unit, while of the same vintage, can claim little progress in its development life. Perhaps the only real office

equipment revolution was the dry copier which arrived some 20 years ago, was an instant success and has changed a whole set of habits in typing, distribution and duplicating. And even that is regarded in some quarters only as an example of people getting something because it became easily available.

The contrast between the number of copies in the first month of installation and the seventh month still tends to stun many buyers of new devices.

The telephone has advanced somewhat, eg in push-button selection, but the features that really please the user — say Keep these Records, Respondents, and above all, Transfer Incoming Calls to Someone Else. All useful progressions from the hand-dranked instrument but still denying integration with paper, word and data processing systems.

Some components of office automation, eg in push-button selection, but the features that really please the user — say Keep these Records, Respondents, and above all, Transfer Incoming Calls to Someone Else. All useful progressions from the hand-dranked instrument but still denying integration with paper, word and data processing systems.

## Going home

But a kind of office automation revolution is taking place, and more significant than the place. The process will involve the flow of the individual's responsibility and might well become known as the devolution revolution — the workers are going home to the cottage workers, who leave their homes only to go on holiday.

visual display screen, a keyboard, and a printing device, he can carry out almost all the functions which he previously did in his office. The savings made to his time and cost of not travelling to work may well suffice to compensate him for working at home, leaving the saving in office provision to help fund the equipment needed to support him in his new location.

## Mobility

Apart from the domestic and leisure advantages and the ability for people to schedule their own work much more than hitherto, there are greater advantages with staff mobility than are currently possible. A worker can easily move to a new job since the location of the "firm" is totally irrelevant to his place of work, which of course remains constant.

As to setting up the highly distributed processing systems, each village or community would have a large central computer with buffers, communications controllers, storage devices, and other peripherals. Each dwelling in the village would be wired to the central computer as a home, presently, as a village would be in line of sight with one or two other dwellings, one being a rural communications grid of frequencies of VHF or above, or by optical fibre.

Some of the results of dispersing the population in the home will be examined. First, the carrying machine might be reduced to a single man-machine. The dispersed population would travel with the machine, leaving the home only to go on holiday.

The roads would also carry mainly freight, but the secondary users would be sightseers and holiday-makers. An enormous saving of petroleum products could be envisaged; this would of course mean the car industry constructing only freight carriers, from the 40-ton articulated vehicle down to the "mini-truck". Private cars, being used almost exclusively for holidays, would probably become a rental item only.

The post office mail service for carrying letters would disappear completely and only the services required to carry parcels not already ready covered by mini-truck branch systems would remain. It follows that the concept of the original document would also disappear, and many documents would exist only in mass storage until copies were printed or the originally stored document was purged.

Management's role.

There can only be examples of the many secondary results, but one worth mentioning as a final point would be the change in the role of management. Managers and supervisors accustomed to having people at their beck and call would find it able to communicate by voice, visually and by document with their staff.

However, psychologists are quick to point out that communication with people remotely, even moves important elements such as body language, and therefore fully the visual aids of sign and management face, so far as the same point (approximately) they will have to be made, therefore, mental adjustments to the new situation.

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To the average Southerner Newcastle-upon-Tyne probably means coal, unemployment and the famous "Broom" ale.

Software File Editor CLAIRE GOODING went to an exhibition to celebrate the city's first 900 years. Called Newcastle 900, it aimed to show that, while the above view is not entirely wrong, it misses out quite a lot.

Newcastle is a city addicted to "fires" — its elegant Georgian streets were the first to be lit by electricity, thanks to Swan. In the last century, Stephenson, Armstrong and Palmer were among the local lads and this helped to make Geordies land one of the UK's strongest industrial areas.

One hundred years later, Newcastle is still trying to regain its leadership by welcoming new technology with open arms. This is proved by projects like the Byker Wall housing development which is heated by a waste reclamation plant, and the local electric railway service, the Metro, which not only brought work to the area but also reopened to passengers lines closed by Dr Beeching.

## Varsity's bid to spread the word

IN a bid to teach local firms how to use computer techniques, Newcastle University's Chemical Engineering Department took part in the Newcastle 900 exhibition.

The department had several applications on display at the exhibition which illustrated process control, computer aided design and word processing — Dr Julian Morris students use the latter to produce their theses!

It has also developed its own database on chemical properties, based on a Comemco System III. Other projects such as the micro-controlled monitoring of acid in the output of effluent into rivers have won the interest of industry.

Using a Digital Equipment PDP-11, also used for graphics — and Zilog's Z80-based MC2-1, the department has developed a system which "teaches itself" the system uses a self-tuning control algorithm to allow a distillation column to respond to environmental changes. The project was started six years ago and was the result of several PhD theses. It has been tested in Canada and the department is hoping for a first customer, probably a local chemical firm.

## Plenty of home-grown software products

THE North East has largely been ignored by the big national software houses, but there were plenty of local "home-grown" products on offer at Newcastle 900.

One show were several small enterprises eager to provide computer expertise to the longer established, commercial and manufacturing firms in the area. These included: Real Time Systems, a South Shields firm, which has developed a System 800 which has produced its own business system and hardware firm among its members.



Despite failing in his bid to win an Immos factory, Nowconilo is still keeping abreast of computer developments. Here, at the Gas Board's engineering research station at Killingworth, where local lad George Stephenson used to work of the pit, micro processor-based systems are tested at the station's electronics and instrumental laboratory.

# Geordies utilise old and new skills

PROGRESS is more important than history for the Geordies. Who else would have built a railway almost through the middle of a castle built in 1080?

To celebrate its 900th birthday, Newcastle is, as ever, looking forward rather than back with an exhibition of energy and engineering in the Eighties at the university campus. It was called Newcastle 900.

There is evidently no shortage of lively minds and creative skills. Encouraged by the council, new enterprises are springing up which draw on Newcastle's traditional skills such as heavy engineering and mining to combine them with the new technology.

British Gas has several establishments in the North East, including the Engineering Research Station in Killingworth. "We are constantly seeking new ways of tying in microprocessor technology with existing engineering skills," said Colin Duncan of British Gas's External Services.

Micro-engineering is being developed for applications such as monitoring the performance of valves which control the flow of gas through pipes.

The systems feed essential maintenance information back to engineers so that they can effectively govern such factors as gas pressure from one central point.

## Success

Other successful projects include the On Line Inspection Centre at Cranlington, which uses microelectronics to inspect 10,000 miles of high-pressure gas pipelines.

On a smaller scale, there are developments such as the Gascoptic, a hand-held device about the size of a briefcase which is about to undergo field trials. In its triangular bottom half three sensors give an accurate detection of underground pipes — a development which would be highly saleable elsewhere.

British Gas is proud of its readiness to take up microprocessor

technology, and it has no regrets about choosing the North East. The land was available, and the support for development was an offer. Most important was the pool of technical skills there far the picking.

The cultural and academic side of Newcastle has always been closely tied in with its livelihood. More than one University depart-

ment has links with local industry, and they are eager to pass on enthusiasm for computers.

Its Chemical Engineering Department plays a particularly active role in passing on state-of-the-art computer expertise. It has developed its own extensive system of minis and micros as well as using the computing laboratory's IBM 370.

# Helping local firms to adapt to micro technology

IN Newcastle's Jesmond Road there is another example of academic-commercial co-operation. The Micro-electronic Applications Research Institute is an unusual alliance of the city's Polytechnic, the university and one of the UK's largest software houses, CAP-CPP, with extensive funding from Tyne and Wear County Council.

On display at Newcastle 900, MARI had examples of how it tries to help businesses adapt to micro technology.

Marvin, a system developed for a client to monitor hazards in offices and factories, uses an Apple II. The Apple uses sensors placed around the premises, and if there is a failure of any sort will give an early warning. A screen diagram indicates the safest escape route from the building in case of fire, or invisible hazards like radiation or poisonous gases.

MARI is also involved in teaching engineers and business people how micros can assist them. One project on show, developed with a local firm, was used by a local

school to monitor results of laboratory experiments.

## Involved

The RT80 laboratory system was designed and built for use in teaching and research. The user has immediate access through a front panel so that data lines can be connected with experimental apparatus.

MARI is also involved in process control, automated testing of components and a wide range of industrial applications for microelectronics, including a robotic project with a small engineering company.

About 80 per cent of MARI's projects are with local companies, large and small.

## On the move

A TRAINING centre for users of online information retrieval services is to be opened in London this month by the magazine Online Review Terminals, and visual aids will be available.

# MORE OF EVERYTHING AT...

**The West Centre Hotel, Lillie Road, Fulham, London April 1-3, 1981**

**SO SUCCESSFUL** was the 1980 Peripherals Suppliers' Exhibition, that the organisers have had to make it bigger in every way for 1981.

**MORE TIME** — An extra day, three instead of two. Attendance in 1980 was treble that of the previous year and in the opinion of the exhibitors the RIGHT people attended.

**MORE SPACE** — Half as large again to accommodate all the companies that want to exhibit — already over 60 per cent of the 1980 exhibitors have re-booked.

**AGAIN** — Peripherals will bring together suppliers and buyers of technically sophisticated computer equipment in the relaxed atmosphere of a first-class hotel exhibition suite.

**AGAIN** — Peripherals is presented by the Peripherals Suppliers' Association and sponsored by "Systems International", the prominent monthly computer journal of IPC Business Press, the world's largest complex of specialist and business journals.

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# ... AND IF YOU THOUGHT THAT WE HAD FORGOTTEN TO RUN



## It's so tight as Viv strikes gold

THE finals of Computastars started off with a series of bangs on Saturday at the New Alexander Stadium, Perry Bar, Birmingham. The surprise event was pistol shooting — just the thing for hangovers.

Organiser Gordon Cairns said: "They're calling me the JR of Computastars. No-one expected it — it was a bolt from the blue." This event also threw up one or two surprises: the winner of the men's events in this section was Piet Wolven of Swets en Zeitlinger from Holland, who said he had never fired a gun before!

While there was plenty of competitive spirit from competitors such as Geoff Linnell of Data Logic and Martin Rigby of Rowntree Mackintosh, in the men's individual events it was Viv Oliver of Safe Computing who came through to take the gold.

The ladies had the closest competition though. First place honours were shared by Bridget Cuthill (Legal & General) and Lucy Baines (United Biscuits) with 79 points each. Despite the fact that they were neck and neck most of the day, there was always



a threat at some stage from the other girls in the top 12 placings. Third place went to Anne Shatto of Rowntree Mackintosh who has featured in the honours in previous years.

In the men's individual events, no less than three competitors tied for overall second place. They were Geoff Linnell (Data Logic), Dave Cross (National Provident) and Piet Wolven (Swets en Zeitlinger).

Up until the last event Viv Oliver of Safe Computing was just in the lead by one point. His team captain started to look at the scoreboard and realised that they could share the honours if something a bit extra could be pulled out of the hat.

Many competitors must also have regretted not getting more points earlier on in the day. So it was left to the steeplechase — always a crowd-puller — to sort out the men from the boys, so to speak.

As Father Time was advancing, the organisers decided to reduce the distance to one lap of 400 metres — but this did not stop the usual number of competitors taking an early bath.

All this did not deter Viv Oliver from giving his best. As most of the competitors were down for this event, no-one knew who would be the overall winner — it was just a case of going as fast as one could.

Viv also scooped the Computastars Tankard for being the top international sportsman at the finals. There was also plenty of action in the gym events. Despite it being a test of muscular endurance, competitors were in fine vocal form as well.

Mick Jones, 24, a systems analyst with Data Logic at Manchester, said: "It was awful. We drew lots for this (event) and I lost." He did manage 15 push-ups though.

### INDIVIDUAL RESULTS

Best lady: Bridget Cuthill (Legal & General) jointly with Lucy Baines (United Biscuits) both with 79 points; 3. Anne Shatto (Rowntree Mackintosh); 4. Louise Carter (Sega); 5. Paul Ellis (Midland Household Stores); 6. 72.

Best man: Viv Oliver (Safe Computing); 75 points; 2. Geoff Linnell (Data Logic) jointly with Dave Cross (National Provident) both with 73 points; 4. Paul Ellis (Midland Household Stores); 70.

Best international lady: Bridget Cuthill (Legal & General) jointly with Lucy Baines (United Biscuits) both with 79 points; 3. Anne Shatto (Rowntree Mackintosh); 4. Louise Carter (Sega); 5. Paul Ellis (Midland Household Stores); 72.

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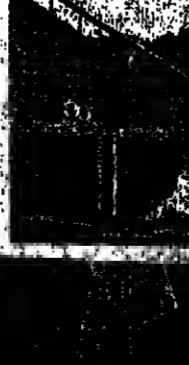
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RIGHT — The fourth event was a football dribbling relay. This consisted of each team member dribbling a ball through three hoops and then shooting for goal. The next person could not start until the previous one had scored. Here John Brouwer of Digital Equipment (based at Utrecht) demonstrates his skills.



BELOW — In the 400 metres hurdles relay, team captains could decide where to place the change-over. Here Rowntree Mackintosh's Martin Rigby overtakes ARC's Chris de Bont.



LEFT — There was a tie for first place in the UK Ladies individual events. Computer Weekly editor Simon Timm presents medals to (from right) Bridget Cuthill of Legal & General, Lucy Baines of United Biscuits and Anne Shatto of Rowntree Mackintosh. Bridget and Lucy will share the Computer Weekly Rose Bowl for six months each. Simon also presented medals to UK men's events and judged the Computerist competition.



## Piet shoots his way to victory

FOR the first time Computastars went international with a strong Dutch contingent — with the likelihood of further countries joining next year.

There were separate awards for the Dutch teams, who were eligible for the international awards.

Over 170 competitors and their supporters flew over from Holland on Friday evening to take part in the event. The Continental contingent gave the finals a flavour of its own with the whistles, horns and clapping.

Despite leaving a contingent at their hotel, the Dutch were among the keenest sportsmen and women there. At 9:30 most of them were seen warming up and training for the event with the enthusiasm that would have brought a tear to a sergeant-major's eye.

Yet the star of the Dutch contingent must be Piet Wolven of Swets en Zeitlinger who did second place overall with Geoff Linnell of Data Logic and Dave Cross of National Provident.

His efforts were a great help to his team and undoubtedly contributed to the Swets team coming 1st at No. 8.

A natural athlete, Piet was modest about his performance. His best result was the pistol shooting though his own preference was in athletics.

The Dutch also seemed to push themselves hardest. At least two Dutch girls had to go for medical treatment after their race.

In the individual events, only a few points separated the top girls with Corrie Roe van Twilgen of Control Data being the highest placed Dutch girl with 69 points and ninth overall. Social points and ninth overall. Social points and ninth overall.

Adi Covejee, publisher of the Dutch weekly magazine Computastars, invited the competitors to the Holland for next year's contest.

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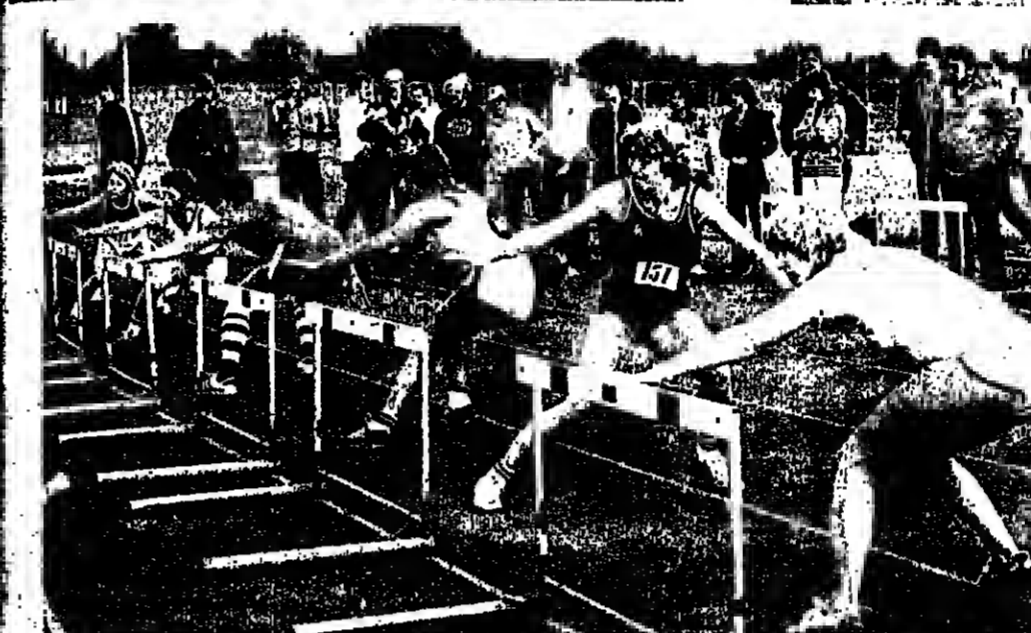
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# THE STEEPLECHASE, YOU ARE IN FOR A DISAPPOINTMENT!



LEFT — Short sprinting is not as easy as it looks. Here, the individual Ladies event shows, from left, Debra Howcroft (Thorn EMI at Telford), Bridget Cuthill (Legal & General), Wilma v. Montfort (Creditanstalt Effektenbank), Jacquelin Reed (Metal Box), Anne Heriman (MHS) and Angus Dunneton (Safe Computing) in action.



RIGHT — The children were not forgotten as Safe Computing sponsored an art competition for the kids which was organised into Under 10 and Over 10 groups. The prizes were presented by Ken Jackson, general manager of Safe Computing. Over 10 winner was Tracy Lewis (12) whose father Joe is a technical analyst with BLS Systems at Redditch. Under 10 winner was Tim Elkin (7½) whose father Bob is a consultant with ... Safe Computing!

## Team honours depended on the last race

WE didn't realise until the start of the steeplechase that we had a chance," was the remark of Glyn House of Midland Household Stores, just after he received the Men's team trophy at the final of Computastars on Saturday.

Not only were his team-intermediate winners, getting their trophy from Mrs. Maureen Cairns, but they also won the George Wright Trophy for the best UK team.

Glyn's team amassed 213 points in a competition where the competitors set their own standards. This was the final was run on Decathlon lines with all teams entering all the events and the top member of each team entering the individual competitions.

Organiser Gordon Cairns said the standards were higher than ever and the leading teams were all competing the last point.

Second placed was Data Logic who scooped the Queens Hotel trophy for best combined ladies' and men's team, were third.

The events were pistol shooting, 400 metres hurdles relay, gymnastics, soccer, dribbling, hockey, shooting, short sprints and the steeplechase.

Added from the results, it can be seen that the final three events, Midland Household Stores took the lead in the gun session and Data Logic took the lead in the late events, but such an easy ride was not theirs in the steeplechase.

At the end of the day, a state of mind prevailed in the Dutch contingent.

At any time Rowntree Mackintosh, United Biscuits or Basmas could have put in a bid for the honours.

Among the many honours being bid for was the Unipex Trophy for the best placed bureau, male or female. This was grabbed by Safe Computing's Men's team with 202 points.

RESULTS

Best UK Ladies' team — Legal & General 224 points; 2. Rowntree Mackintosh 200; 3. United Biscuits 200; 4. Basmas and Thorn EMI (Hayes) 192.

Best UK Men's team — Midland Household Stores 213 points; 2. Data Logic 209; 3. Rowntree Mackintosh 204; 4. Safe Computing 202.

Best Bureau — Safe Computing (Men) 202; 2. ARC 185; and 3. Safe Computing (Ladies) 153.

Best combined Ladies' and Men's teams — Rowntree Mackintosh, 413 points; 2. Midland Household Stores 384; and 3. United Biscuits 366.

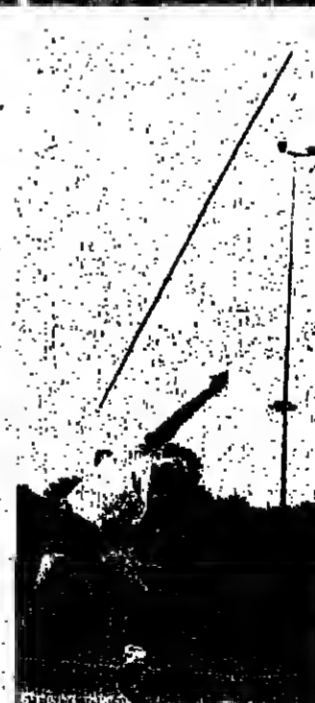
Best international Ladies' team — Legal & General 224 points; 2. Rowntree Mackintosh 209; and 3. United Biscuits 204.

Best international Men's team — Midland Household Stores 213 points; 2. Data Logic 209; and 3. Rowntree Mackintosh 204.

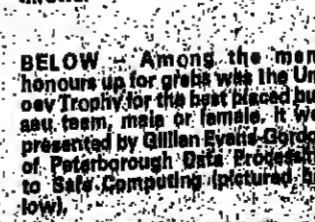
Best individual events — John Brouwer (Digital Equipment) 81; 2. Lucy Baines (United Biscuits) 79; 3. Anne Shatto (Rowntree Mackintosh) 75; 4. Louise Carter (Sega) 73; 5. Paul Ellis (Midland Household Stores) 72.

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ABOVE — Tim Thickett, of Woolworths (based at Rochdale) turns his javelin across the field of play. Tim recorded one of the better throws.



BELOW — Among the many honours up for grabs was the Unipex Trophy for the best placed bureau, male or female. It was presented by Gillian Evelyn Gordon of Peterborough Data Processing to Safe Computing (pictured, below).



## ALL THE RESULTS

AS promised here are the results in full. They give running totals for each event in reverse order in which they happened — steeplechase, short sprints, hockey, dribbling, soccer, shooting, gymnastics, 400 metres hurdles relay, javelin and pistol shooting.

The results are also for the individual competition which was between the first named in each team who had to enter every event.

Best team events — Legal & General 224, 187, 158, 126, 93, 77, 38 and 22; 2. Rowntree Mackintosh 209, 176, 149, 115, 79, 66, 39 and 25; 3. United Biscuits 200, 177, 147, 122, 89, 69, 39 and 22; 4. Basmas 192, 160, 135, 100, 75, 55, 40, and 18; 5. Thorn EMI (Hayes) 192, 166, 138, 107, 74, 63, 27 and 12; 6. Rockin' & Colman 188, 169, 131, 102, 69, 33, 35 and 21.

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## PRODUCT NEWS INTERNATIONAL

## Electronic clocking-in based on Intel 8085s

ELECTRONIC time recording that replaces the traditional clock card and gives management reports on each day's attendance, hours worked and overtime can be achieved with Plantime's Plantime-Four system. Based on Intel 8085 chips built into terminals, workers clock in and out using a personal nylon key. While the key is inserted, the worker's works number, hours worked so far, and overtime accrued appear on a 32-character, liquid crystal display. This enables only the worker to see the information.

On a basic system, up to 2,000 workers can use any of up to 32 terminals in the works. The system can be pre-programmed to operate eight different weekly or fortnightly working timetables, each consisting of any permutation of eight different types of working day or shift. These include shift work, day work, part-timers, flexible hours and staff hours.

All terminals are connected to a communications and monitoring centre, although smaller systems may use them on a standalone basis. All terminals have their own 4K memories and chip sets. If one fails, the others can still function.

The centre's own memory is a minimum of 8K with computer-compatible output on floppy disc. Terminals communicate with the processor and with each other via repeater units so that any terminal may be removed without interrupting the data path. Up to eight terminals can be on each of the four loops. Communications speed is 9,600 baud on 20 millamp current loops.

Management can obtain automatic printouts which include details of attendance, clocking in and clocking out times analysed according to department and working group within that department.

Foremen can also have an attendance indicator which shows lights beside people's names once they have checked in. Weekly or monthly reports can also be printed as well as an indi-

Our picture shows Plantime's Intel 8085 based replacement for traditional clocking-in machines being used. Each worker has a personal nylon key for clocking-in. On the basic system up to 2,000 workers can use up to 32 terminals at a work place.



vidual attendance record for each worker if required. Attendance data can be run directly on the payroll program from the floppy disc.

Plantime Ltd (CW), Shakespeare Industrial Estate, Shakespeare Street, Watford, WD2 5HD. Tel: Watford (92) 44300.

## Dual role work station

FROM forms handling manufacturer Wilkes-Multimatic comes a work station designed to double as a terminal table. It has a raised back edge to prevent the possibility of a terminal being pushed off accidentally and is available in either green or buff, with an anti-grain finish. Wilkes says the surface can be wiped clean and is resistant to burns or stains.

There is also an optional adjustment copy holder and an adjustable foot rest. The work station can be sited back to back or side to side. Full length modesty panels are also fitted.

Wilkes says the work stations can be sited back to back or side to side. Full length modesty panels are also fitted.

Wilkes-Multimatic Ltd (CW), Parkfield Road, Wolverhampton, WV4 6EL. Tel: 0902 49434.

GEC Semiconductors Ltd (CW), East Lane, Wembley, HA9 7PP. Tel: 01-904 9393.

## 16 channel analogue signal multiplexer

A SIXTEEN channel analogue signal multiplexer, Model 3420, which is said to have a low series resistance of 0.5 ohms and inter-channel isolation of over 10<sup>3</sup> ohms is available from Farnell International.

Made by Data Precision, it can be used with any data acquisition system and is compatible with equipment having a computer interface such as the 4 1/2 and 5 1/2 digit Data Precision 3400, 3500 and 7500.

Model 3420 is said by Data Precision to provide up to 16 two-wire data channels or eight four-wire channels in addition to having a guard connection.

The unit allows selectable dwell times of 0.1 to 10 seconds and has four operating modes: Operator-selectable, the unit will automatically scan the channels, and the channel can be selected sequentially or randomly by external programming.

The unit weighs 2.5 kilograms.

Data Precision Products Group, 3M United Kingdom Ltd (CW), PO Box 1, Brackley, RG12 1JU. Tel: 0344 5444.

## Torque screwdrivers

GROWING awareness of the importance of correct fastener tension in the assembly of electronic equipment and computers has prompted MHH Engineering of Guildford, Surrey to introduce a range of torque screwdrivers.

They are available with either 1/4-inch square drive spindle for use with nut sockets or 1/4-inch AF female hexagon socket, which will accept screwdriver blades or Phillips head blades. Both versions can be converted by the use of

adapters.

All models are said to incorporate a calibrated triple scale for setting equipment and a locking ring to prevent accidental change through careless handling.

Operation is bi-directional, the tools "slip" at pre-set torque. Resetting is automatic after one third of a turn.

MHH Engineering Co Ltd (CW), Bramley, Guildford, GU7 0AJ. Tel: 0443 92772.

## Lock-operated switch

INDUSTRIAL safety specialists Castell Locks has introduced a key mechanism which enables its range of lock-operated switches to be used as a single unit power control and to access interlocks.

Called Type PL, it is said to obviate the need for mechanical interlocking on many types of machine guards. The Type PL is mounted within the machinery en-

## Industrial digital controller

GEC SEMICONDUCTORS introduces an industrial digital controller designed to operate as a slave to the Intel 8085 microcomputer. GEC says the device is to process most digital input/output signals, thus freeing the master micro from routine tasks.

The firm suggests typical applications of switch sensing, motor speed control, stepper motor application and serial communications.

The controller is said to be able to sense a change of state, count and generate pulses as well as measuring time periods and frequencies. There are nine pre-programmed primary functions which may be requested by the master micro. Each primary function has a specific input/output task.

Commands can be split into two categories: control and utility. Control commands are those used to start and stop a primary function. Utility commands are typically associated with moving data or reading status. Any of the 16 I/O lines not used by a primary function are available for general purpose I/O through the use of utility commands.

The device is housed in a DIP package and requires a single five volt DC power supply.

GEC Semiconductors Ltd (CW), East Lane, Wembley, HA9 7PP. Tel: 01-904 9393.

Wilkes-Multimatic Ltd (CW), Parkfield Road, Wolverhampton, WV4 6EL. Tel: 0902 49434.

GEC Semiconductors Ltd (CW), East Lane, Wembley, HA9 7PP. Tel: 01-904 9393.

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## BOOK REVIEWS

## How do you measure up?

How to assess your managerial style, by Professor Charles Marston. 132 pp. £10.95. MCB Publications, 198-200 Keighley Road, Bradford, BD9 4JQ. Tel: 0274 43823.

UNTIL recently, DP management has typically been isolated from the main stream of company management. DPMs tend to be regarded as more involved in technology than management.

The responsibilities of DPMs embrace or overlap most, if not all, areas of management, including production, stock control, personnel, administration, O & M, finance, R & D, planning and forecasting.

Now with the movement towards DP integration, whether by distributed processing, the introduction of the mighty micro or the thrust of the electronic office, the DP team probably feel themselves being remorselessly drawn into the company.

The publication of this book is opportune. The author believes that by taking a challenging look at your own managerial style, strengths and weaknesses can be revealed, checked and, where necessary, improved.

The volume is structured on a basic premise of leadership, opportunity, motivation and ambition. It is very much a "do-it-yourself" style of book with ample exercises, notes and questionnaires.

Although at times a knowledge of Logs and advanced algebra would help the reader in evaluating the results, the book remains a practical and stimulating study.

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## One of the best yet Case study method used with success

Computer networks and their protocols, by D. W. Davies, D. L. A. Barber, W. L. Price and C. M. Solomonides. 487pp. £17.50. John Wiley & Sons Ltd (CW), Baffins Lane, Chichester, Sussex.

THIS book is a sequel to Communications - Networks for Computers, published by Wiley in 1973, written by the first two authors named above and was concerned with the technology created by the convergence of DP and telecommunications and the emergence of systems that combine them to provide teleprocessing services.

The two books complement each other so that, together, they form one of the best and most comprehensive surveys of computer networks yet available.

After an introductory chapter, there are chapters on packet switching, routing, flow control and congestion avoidance as well as on packet broadcasting systems, including packet radio and satellite systems.

The next three chapters give

extensive descriptions in considerable detail of some of the most important protocols, which are the strictly defined procedures for interaction across an interface and communication across a network.

chapter ends with references to relevant literature.

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## Extensive

The protocols covered here include HDLC, X.25, transport service, other higher level protocols, and terminal handling protocols (X.3, X.28, X.29, and virtual terminal protocols). The authors also describe briefly their views on unified protocol design.

There is then a short chapter on data security, data encryption, and message and user authentication.

The final chapter, on network optimisation, includes discussions of network reliability and availability, and optimisation of line capacity and flow. There is a glossary and a general index, and each

chapter ends with references to relevant literature.

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## Clear

The presentation is clear and mostly non-mathematical and suitable for those with a general background in DP and/or telecommunications.

The book will be specially useful for those concerned with the practical design and operation of computer networks and also for network designers; as such, it is excellent.

However, it gives only brief discussions of theoretical and simulation methods for investigating networks and it does not consider the techniques and problems of network performance measurement.

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Structured Systems Analysis: Tools and Techniques, by Chris Lane and Trish Sanson. 373pp. £15. Improved System Techniques SA (CW), PO Box 118, 1,196 Gland, Switzerland.

CASE studies are good vehicles for explanation and this large, detailed and typed book uses the case study method with success. It also contains a large number of illustrative diagrams.

The methodology proposed is applied in a top down, database oriented, system design.

The analytical role is separated from the design role, but the emphasis is on the latter, and the problems of ensuring that the analyst identifies and specifies all the relevant facts, in the first place, are not developed in the same detail as the design aspects.

Concept

The structured concepts put forward are well worth consideration by any systems analyst who will

need to allow for the very American approach in this book.

Unfortunately the authors do not appear to consider documentation standards such as those of the National Computing Centre, which may have helped them to avoid the use of a lot of new symbols. The preference shown for decision trees over decision tables may also be personal to the authors.

Myth

Clearly, documentation is shown as an integral part of, and as an aid to, design work and if the myth that "documentation is something done at the end" is killed off, then the book will have served a very useful purpose.

The authors' case may be overstated by comparing good structured design with some not so good "direct" design, but they present a good idea enthusiastically.

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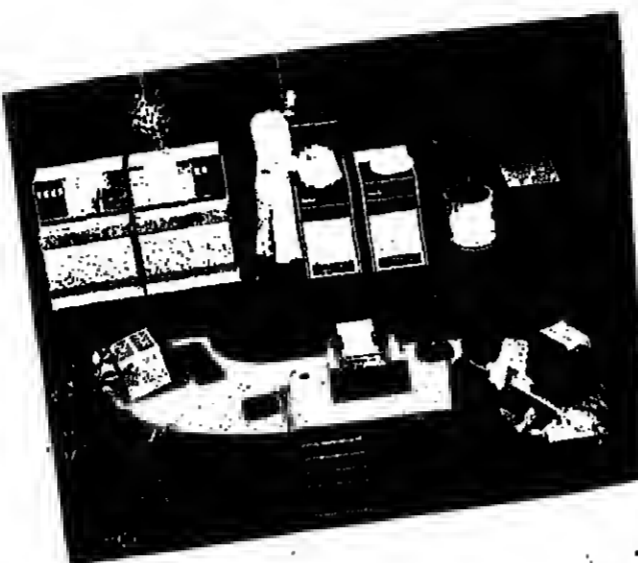
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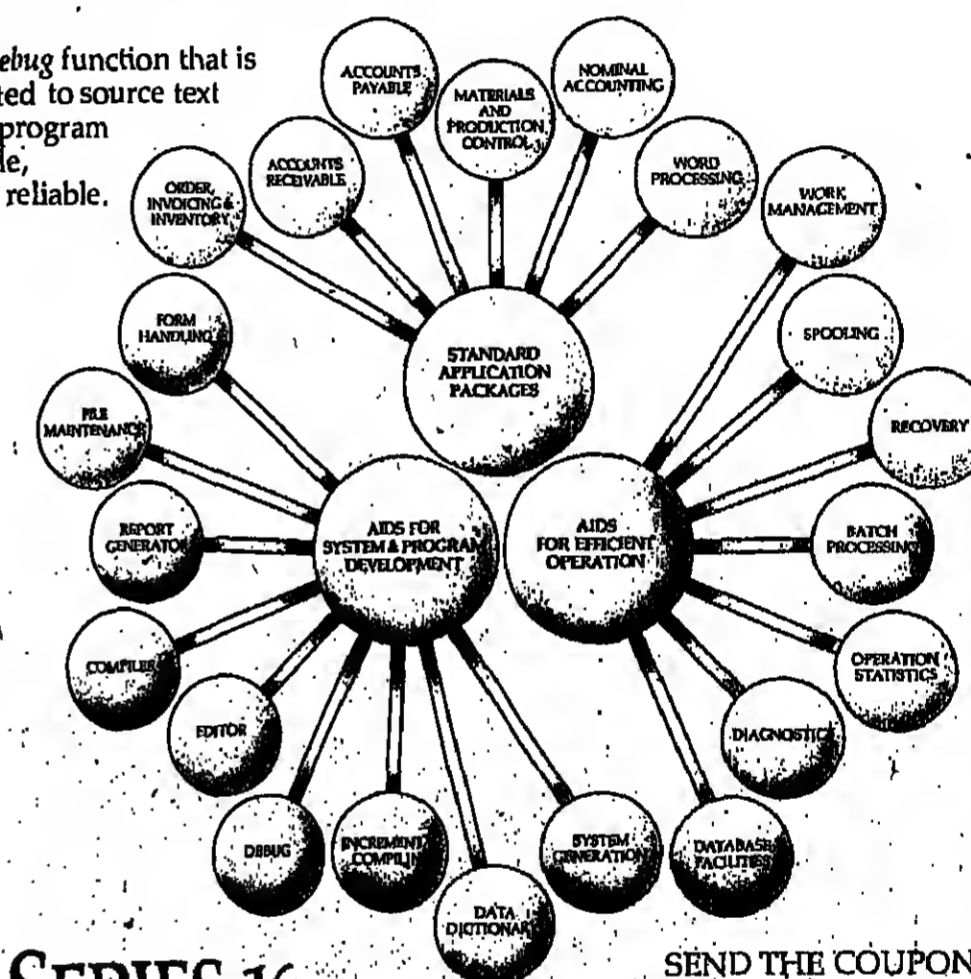
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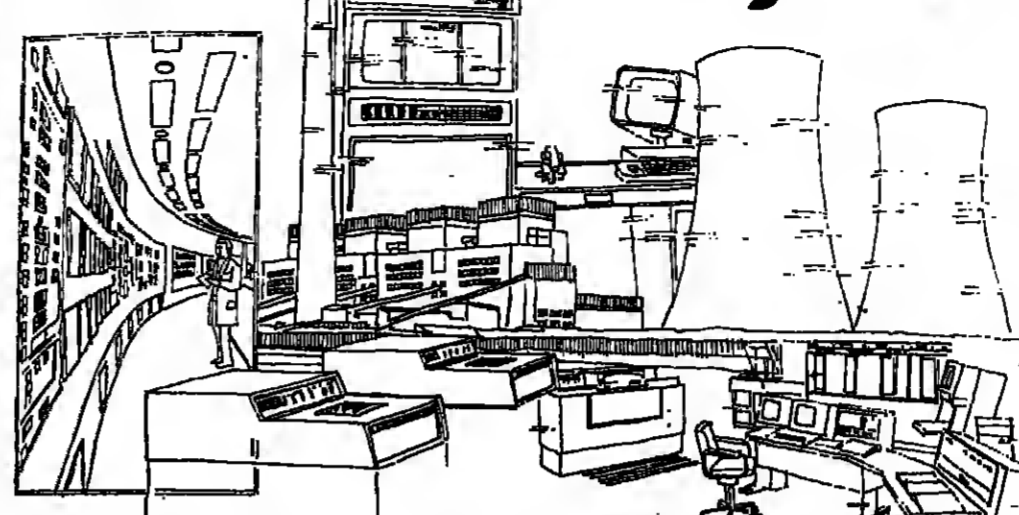
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Ref DP13  
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## BOX Nos.

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## DB — SALES SUPPORT

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## SYSTEMS PROGRAMMER

1-2 years' Systems Software in Assembly on Minis plus CORAL for design, development and providing technical support to Dutch client of Herts-based Mini Manufacturer. Degree preferred, ability to work alone effectively essential. Travel to Holland required.  
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## MINI DEVELOPMENT

Analyst/Programmer and Team Leaders with Assembly on Minis (e.g. DEC, DG, Burroughs, etc.), required by Development Group of leading Mini Manufacturer. Experience of Interfaces and Interactive Systems of particular interest. Base in South Middlesex.  
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See p. 150

# Contracts

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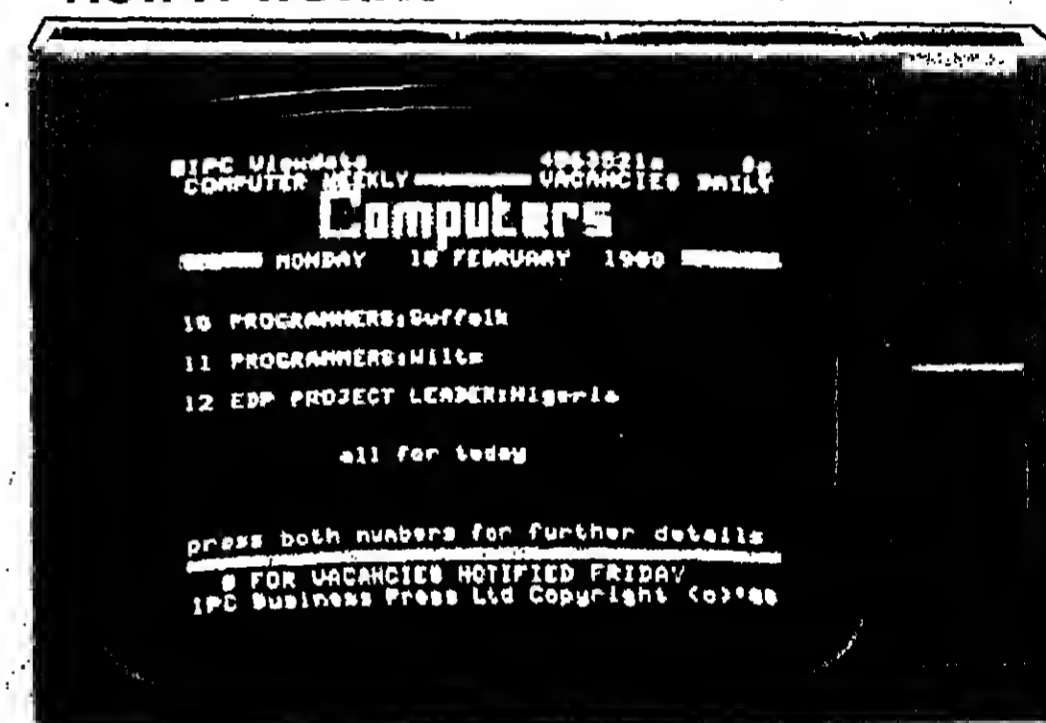
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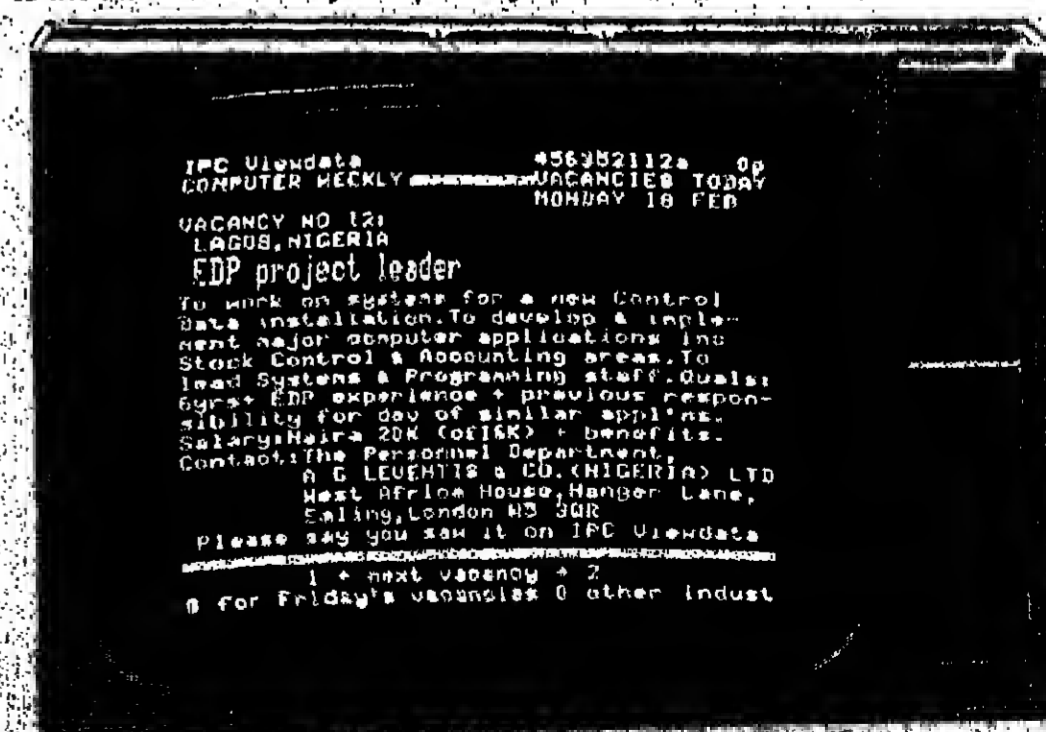
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**1**

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(2780)

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Applicants are invited for the above post from applicants with a relevant degree or HND and several years of software experience.

The post will involve technical responsibility for the software employed in the Department research and teaching laboratories, together with the supervision of support technicians.

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(2762)

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(2746)

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(2760)

**The Polytechnic of Central London  
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in COMPUTING

There are urgent vacancies for the above and the college is looking for BSc HND and HND Endorsement holders and the subject required to be taught is in the areas of Computer Systems (Hardware and Software) and Program. Applications from the Establishment Office, P.O. Box 200, Regent Street, London W1A 2AL. Tel: 01-462 2000 ext. 212.

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For further details please telephone or write to Brian Bliston at our UK office, or call during evenings/weekends on 03446 5385.

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Application form, role specification and further information available from:

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Prescription Pricing Authority  
Bridge House  
152 Pilgrim Street  
Newcastle upon Tyne NE1 8SN  
Tel: N/cle. 25371

CLOSING DATE 1st October, 1980

(2798)

## Computer Systems Personnel South Africa

The Centre for Computing Services of the Council for Scientific and Industrial Research (CSIR) in Pretoria, the administrative capital of South Africa, requires top-class systems personnel to cater for all the computing requirements of the Council.

The Centre operates three large machines via a control Data CYBER 174 running under NOS to service scientific engineering applications, and a dual loosely coupled IBM 370/158 running under MVS with TSO/SPF, CICS, etc. to service information processing applications.

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A B.Sc. degree or equivalent, ideally with computer science as one of the major subjects, will be a recommendation, although applicants at all levels of qualification will be considered whether they have previous systems programming experience or not. Complete in-service training is provided and staff members are encouraged to develop their expertise in appropriate areas of computing systems technology through the attendance of courses, symposia and the like. Working conditions are amenable to further study, and researchers are offered both practical and financial assistance.

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CSIR

Council for Scientific and Industrial Research

(2798)

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**ANALYSTS**  
(DR1960) 2+ years commercial ... £7500 2  
(DR1961) 3+ years financial ... 7500 2  
(DR1962) 4+ years (seniors) ... 8000 2

**PROGRAMMERS**  
(DR1963) 2+ years COBOL ... £6250 2  
(DR1964) 3+ years COBOL ... 6750 2  
(DR1965) 4+ yrs (seniors) COBOL 7250 4

Contact Susan Stuart

## Coventry

**ANALYSTS**  
(DR1966) 2+ years commercial ... £6000 2  
(DR1967) 4+ years (seniors) ... 7750 2

**PROGRAMMERS**  
(DR1968) 18+ months COBOL ... £5750 2  
(DR1969) 2+ years COBOL ... 6500 2  
(DR1970) 4+ yrs (seniors) COBOL 7800 6

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## Leicestershire

**ANALYSTS**  
(DR1971) 18+ mths commercial ... £8500 2  
(DR1972) 2+ yrs financial ... 8500 2  
(DR1973) 2+ yrs manufacturing ... 7000 2

**PROGRAMMERS**  
(DR1974) 18+ months COBOL ... £6250 2  
(DR1975) 2+ years COBOL ... 6500 2  
(DR1976) 3+ years COBOL ... 7000 2

Contact Susan Stuart

## Nottinghamshire

**ANALYSTS**  
(DR1977) 2+ years financial IBM ... £7500 3  
(DR1978) 3+ years commercial ... 7200 3  
(DR1979) 4+ years (seniors) ... 7750 4

**PROGRAMMERS**  
(DR1980) 2+ years COBOL ... £6500 3  
(DR1981) 3+ years COBOL ... 7000 4  
(DR1982) 4+ yrs (seniors) ... 7500 4

Contact Susan Stuart

## Staffordshire

**ANALYSTS**  
(DR1983) 2+ years commercial ... £8500 2  
(DR1984) 4+ years (seniors) ... 8000 2

**PROGRAMMERS**  
(DR1985) 2+ years PL/I ... £8500 2  
(DR1986) 2+ years COBOL ... 8500 2  
(DR1987) 4+ yrs (seniors) COBOL 7500 5

Contact Susan Stuart

## Greater Manchester

**ANALYSTS**  
(DR1988) 12+ mths commercial ... £6000 2  
(DR1989) 2+ yrs manufacturing ... 7000 2  
(DR1990) 3+ years financial ... 7500 4  
(DR1991) 4+ years (seniors) ... 8000 2

**PROGRAMMERS**  
(DR1992) 12+ months COBOL ... £5500 4  
(DR1993) 2+ years COBOL ... 6500 5  
(DR1994) 3+ years COBOL ... 7000 4  
(DR1995) 4+ yrs (seniors) COBOL 7500 3

Contact Cathy Scott

## Merseyside

**ANALYSTS**  
(DR1996) 12+ mths commercial ... £8000 2  
(DR1997) 2+ years production ... 8700 4  
(DR1998) 3+ years financial ... 7200 5  
(DR1999) 4+ years (seniors) ... 8250 3

**PROGRAMMERS**  
(DR2000) 18+ months COBOL ... £6500 2  
(DR2001) 18 months IBM ASSEMBLER ... 7000 3  
(DR2002) 3+ years COBOL ... 7250 2  
(DR2003) 4+ yrs (seniors) COBOL 7800 4

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## Lancashire

**ANALYSTS**  
(DR2004) 12+ mths commercial ... £6000 2  
(DR2005) 18+ months financial ... 6500 2  
(DR2006) 2+ years manufacturing ... 7000 2  
(DR2007) 3+ years commercial ... 8000 2

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## Lancashire

**PROGRAMMERS**  
(DR2008) 12+ months COBOL ... £5500 3  
(DR2009) 18+ months COBOL ... 6250 3  
(DR2010) 2+ years COBOL ... 6700 4  
(DR2011) 3+ years COBOL ... 7200 4

Contact Cathy Scott

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## Yorkshire

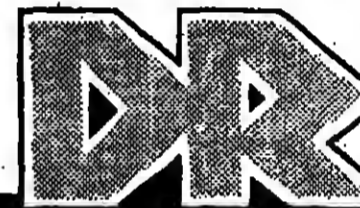
**ANALYSTS**  
(DR2012) 12+ mths commercial ... £5500 2  
(DR2013) 18+ months financial ... 6800 4  
(DR2014) 2+ yrs retail ... 7300 4  
(DR2015) 3+ years commercial ... 7750 5

**PROGRAMMERS**  
(DR2016) 12+ months PL/I ... £5500 2  
(DR2017) 18+ months COBOL ... 6250 2  
(DR2018) 2+ years COBOL ... 6500 4  
(DR2019) 3+ yrs (seniors) COBOL 7200 5

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Interested? Send coupon FREEPOST or phone quoting relevant reference

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
LANGUAGES USED \_\_\_\_\_  
PHONE HOME \_\_\_\_\_ BUSINESS (will be used for contact) \_\_\_\_\_  
YRS ANALYSIS \_\_\_\_\_ YRS PROGRAMMING \_\_\_\_\_  
MACHINES USED \_\_\_\_\_  
JOB SOUGHT \_\_\_\_\_  
SALARY \_\_\_\_\_ SALARY REQUIRED \_\_\_\_\_ CV/18/9



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valuable level concessions

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Our various London locations are linked by our own data communications network and the main data centre consists of IBM 370/148 and 3081 operating under CDS/VS1, two ICL 1904S and one 2801 operating under GEORGE II and GEORGE II DME, plus Radix data preparation equipment.

London Transport

If you have at least four years experience with this type of equipment and would like to develop your career in our expanding environment, please Deborah Kelly on 01-227 3635 for further details and an application form or write to her at Staff Appointments, London Transport, 100, The Quadrant, London W1A 1AA. Tel: 01-462 1111.

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## MEAT AND LIVESTOCK COMMISSION

## Senior Programmer/ Analyst

ICL ME 28 £6893-£8612

During the past few years an extensive range of programs has been developed for a variety of batch systems on the Commission's ICL 1900 series computer. Replacement is now in hand to transfer all work to an ICL ME 28 with 12 VOLS.

A Senior Programmer/Analyst with a good knowledge of COBOL and experience of ICL 1800/2800 computers, is now required to assist with the transfer of existing work; there will also be the responsibility for the design, programming and implementation of programs taking full advantage of the ME 28 facilities.

Compensation will be on scale £6893-£8612, with excellent conditions of service and terms of employment. Applications from persons of suitable qualifications should be sent to: Mr. J. H. Smith, Sales Executive, 100, The Quadrant, London W1A 1AA. Tel: 01-462 1111.

Application form from Personnel Division, Meat and Livestock Commission, P



international appointments

## In the Gulf—the only thing you'll miss is the Rush Hour

**SYSTEMS AND SOFTWARE SPECIALISTS**  
£19,000 P.A. after tax

The computer and support departments of the world's largest oil producing company has openings for three types of technical personnel. These are career positions, offering stable employment and exposure to some of the most up-to-date IBM hardware and software.

**T. P. ANALYST.** Could you handle a network of over 7 IBM 370s and 1000 terminals? If you have a knowledge of ACF/NCP, ACF/VTAM, NCCF/NPDA, you may be the right person.

**USER SERVICES ANALYST.** You should have a good knowledge of MK, IV and have worked on the MVS/JES2 operating system. Experience with packages such as ASM2 and ACF2 as well as one other programming language is highly desirable.

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### Systems Analysts

c. £7,500

These jobs will appeal to people with slightly less experience than relevant to the Senior Systems positions but who, nevertheless, have the potential to aspire to a senior level within a reasonable period.

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Applicants should have at least 12 months experience of COBOL in an IBM main frame installation and have the desire to work on the development of applications programs in an IMS/DB/1 environment.

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Gateway House, 50 High Street,  
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## THE SALES BIT

## Emperor who didn't know how to delegate

DURING the process of considering possible topics on the broad subject of sales management, I found myself recalling a situation within a science fiction story I read several years ago. I believe it comes from the Foundation and Empire trilogy by Isaac Asimov.

In essence (with no guarantees for literary accuracy), our hero is summoned to the presence of the Emperor of the most powerful interplanetary empire within the galaxy. His arrival at the capital city is an awe-inspiring experience, such is the architectural grandeur of its setting and the technologically advanced state of its fundamental mechanism.

On reaching the imposing palace, the very threshold of his meeting with the seat of ultimate power, he experiences for the first time in his life the intimidating sensations of fear and uncertainty.

Time passes, and slowly our hero begins to regain his confidence.

Without moving his guard-like posture he strains his eyes down to observe the task in which the emperor is so deeply engrossed. He is staggered by what he sees, but instantly recognises the nature of the job he has to do.

The emperor is checking the invoices!

TRADER

COURSES AND CONFERENCES

Briefing sessions

INDUSTRY Briefing is a series of conferences organised by

Industrious, designed to give detailed information on available data processing products and services. From October 15-17 the theme will be the IBM 4300 series. This conference will be held at the Portman Hotel.

From October 21-23 the subject is Which Point of Sale System? from November 11-13, at the Tara Hotel the IBM System 38 will be under discussion.

Which small business computer? will be held at Kensington Close from November 25-27. All venues are in London. For further information ring (0628) 39101.

From November 24-27 Aetec holds its annual computer congress, the Congress Aetec Information 1980. It is aimed at users, designers, researchers and representatives from the computer industry, and will include presentations on topics such as ADA, system specification, distributed systems and speech recognition.

The conference will be held in Paris. For further details telephone Elisabeth Foyola on (033-1) 766 2425.

Removing the mystique

THE Institute of Chartered Accountants of Scotland is running a course to take the mystique out of computer installations, and provide a familiarity with computer terminology and concepts. No prior knowledge of computers is required. Subjects covered will include: programming languages, cost of a computer system, operating systems and program testing techniques. The course will be held from October 6-10 at the Central Hotel, Glasgow. The fee is £215 + VAT. Enquiries to: The Director of Post Qualifying Education, Institute of Chartered Accountants of Scotland, 27 Queen Street, Edinburgh EH2 1JA.

A course designed to provide data processing managers with an insight into significant changes likely to occur in the DP field during the next decade is being held at the Clive Hotel, London, on October 10-12.

Organised by the Data Control Data Institute, the course will focus on online computer usage, inventory control, material handling and other applications. The fee is £280 + VAT, and the course will be held in the Clive Hotel, London, on October 10-12.

For further information, contact Irene Phillips, Control Data, 179/199 Shaftesbury Avenue, London WC2H 8AR. Tel: (01) 240 3400.

Puzzle Answer

BEVEN = 363,032

SEVEN = 73,032, ONE = 423, HUNDRED = 1,529,839.

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## TOOTING LONDON SW17

The South West Thames Regional Health Authority requires additional operations personnel to be based at the Regional Computer Centre, Springfield Hospital, London SW17. Computing within the centre, is currently based on powerful ICL 1904S hardware (soon to be upgraded to 2900 range equipment) running under George 3, which provides medical, financial and management information to the Region. A two-shift system is in operation and other benefits include modern offices, coffee lounge and excellent recreational facilities both on-site and nearby.

### SENIOR OPERATOR £5500-£7712\*

This position will interest operators who have at least 18 months' George 3 experience and wish to develop their supervisory skills.

### DATA CONTROL CLERK £4682-£5565\*

Applications are invited from candidates who have a good understanding of data control, preferably with a knowledge of George 3/CL.

\*Includes shift allowances.

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## NEXT WEEK

## NORTHERN RECRUITMENT FEATURE



Advertisers are reminded that the next Computer Weekly Northern Recruitment Feature will be published on September 25th and will highlight career opportunities in the North.

Space reservations should be made as soon as possible to:

**Owen Kelly—Manchester—061-872 4211**  
**Julie Hannaford—London—01-261 8002**

Copy Deadline PM Friday before

**COMPUTER WEEKLY**

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Our client who is London based, and is fast becoming a market leader in the mini computer/financial systems field need three more sales executives to exploit this growing demand.

Ideally, you'll be from a computer environment with a strong commercial or financial background or have experience of selling to financial management. Thorough training will be given so you'll come to know the possibilities of the equipment backwards. And you won't be going in cold because our client is backing the exciting new launch of a new mini computer with a heavy advertising campaign in both the computer and financial press, as well as first class sales support including highly professional customer training facilities.

Mind you - this is a tough competitive business and that should give you a pretty good idea of the calibre of people our client is looking for. But with this demanding job you'll find the rewards amply match the achievement.

Basic salary ranges between £7,500 - £8,500 (Guaranteed negotiable to c12K) and there's a commission scheme that makes the total package doubly interesting. Top people can earn well in excess of £17,000 a year. There's also a company car and the usual range of company fringe benefits.

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Your job will be to liaise with the client from the time the equipment is being installed to ensure a smooth installation/implementation and hand over at which point the client will become part of the individual client's base.

Thorough training will be given on all the equipment with the possibility of you showing promise - of being able to move onto the sales side after a year. You're most likely to have a strong financial or commercial background as most of the clients you'll be dealing with will be accountants, or commercial directors. Some experience of computer based management accounting systems would also be useful.

Basic starting salary is c£8,750 and there's a company car. This is an outstanding opportunity to break into a highly competitive business.

Think you could handle it? - then ring David Wilkinson, Consultant on 01-486 5644 or write to him at the London address below.

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## IBM Programmers

E.E.C. & Scandinavia: Salary to £18K

A leading U.S. multi-national with Data Centre and Development facilities in E.E.C. Countries and Scandinavia is seeking IBM Applications Programmers for its IBM 43XX installations. Candidates should have current programming experience in PL/I, although Assembly for COBOL knowledge will be considered. All candidates must have participated in the program development of an on-line real-time system. Of

particular interest will be those who have worked with an IBM T.P. monitor. The Company can offer interesting projects in the area of S.N.A. network implementation. These positions represent an outstanding opportunity for career-minded individuals to enhance their technical skills whilst enjoying the diverse cultural benefits of another society. Ref: L/38/A

## Software Systems Development

Gtr. London Suburbs: Salary to £12K

A leading Systems Supplier situated on the rural outskirts of London has requested LOGISTIX to identify and recruit the following personnel:

**PROGRAMMERS/DESIGNERS:** Suitable candidates should have a degree in a numerate subject and practical programming experience in either Assembly or Coral 66. Our client's in-house training programme will enhance your programming skills and develop your applications knowledge. You will work as a member of a small team designing, coding and testing real time applications software to meet in-house user specifications.

**PROJECT LEADERS/MANAGERS:** Candidates with proven ability as a Software Engineer or Designer in real-time applications are sought for Project Leader and Project Manager positions. It is particularly advantageous to have had experience in a similar role and to be conversant with resource management tools and user interfaces. However, candidates with the necessary software expertise and a real desire to combine innovative technical skills with a career in management will certainly appeal to our client.

**THE BENEFITS:** In addition to a superior salary our clients offer a comprehensive range of ancillary benefits, including relocation/legal expenses, temporary accommodation allowance, pension scheme, and health/medical facilities. Ref: L/38/B

## Real-Time Application

Pennine Counties: Salary to £10K

A prominent Total Systems Supplier has an urgent requirement for Analyst/Programmers and Project Leaders to join either its Customer Support or Software Development teams. Analyst/Programmers should possess at least 2 years' Basic or Assembly programming to be a limiting factor as the company is well served by road and rail facilities. Ref: L/38/C

candidates will be expected to offer at least 12 months' analysis of other technical or commercial systems. Project Leaders should have a similar background supplemented by actual or potential management abilities. Location is unlikely to be a limiting factor as the company is well served by road and rail facilities. Ref: L/38/C

## Mini Software Development

N. Home Counties: Salary to £10K

Our client is a market-leading manufacturer of 16-bit mini-computers, with a well-established and expanding client base in both the scientific and commercial markets. Development Programmers offering a minimum of 18 months' Basic or Assembly on any mini-computer or micro-processor are urgently required for our client's Research and Development Headquarters.

With a wide range of in-house hardware, unrivalled development facilities are available for ambitious, career-minded individuals. The salary and excellent range of benefits provided reflects not only the success of the company but also the premium attached to recruiting top calibre professionals. Ref: L/38/D

## Systems Consultants

London: Salary to £13K

Our client, a leading International Programming and Systems House based in Central London requires additional project team specialists. These positions will expect candidates who enjoy developing customer solutions and solving related business problems. Suitable candidates will be graduates with a minimum of two years' programming experience on any commercial machine whilst a knowledge of both high-level and low-level languages will be a distinct advantage. If you have designed at least one complete on-line system or have had project management responsibility, then you will be considered for a more senior position. Ref: L/38/E

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## NEWS IN BRIEF

### Hopes for Dol viewdata

THE Department of Industry hopes to have the first stages of its internal viewdata systems (CW, April 3) up and running well before the end of the year, following the completion of a feasibility study by Pictel.

It is likely to use an existing computer belonging to an external agency for speed of implementation and the biggest problem is thought to be finding the people to put its information into viewdata format.

BRITISH Telecom's Martlesham Research Centre near Ipswich is to be open to visitors all next week with about 20 exhibits showing the main areas of its development work aimed at improving telecommunications services and boosting the industry's exports.

THE French labour ministry has announced a programme to provide a state-funded training course in DP. Starting in October, running for 10½ months and taking 1,000 trainees, the courses will have half the places reserved for the unemployed.

### Nixon to speak today

PERHAPS the most retiring of the UK heads of major computer companies, Edna Nixon is to address the London branch of the British Computer Society this evening, Thursday, on "The benefits of an open market" giving an alternative view to that of Dr Celia Wilson, managing director of ICL, who spoke to the branch on "The need for protection" in February. The meeting is at the Waldorf Hotel, Aldwych, starts at 8 for £5.50 and all are welcome.

# COMPUTER WEEKLY

## National food invoicing network likely

A NATIONWIDE electronic order and invoice network for food manufacturers, suppliers and retailers could come about as a result of trials which are currently in progress.

In the short term companies will order and invoice by means of magnetic tape and an on-line network is a very strong long-term possibility, following an amendment to the Finance Act 1980, under which electronic invoices are now acceptable to the Customs and Excise Board.

Boots the chemists and Makro already have a telephone link and such retailers as Fine Fare and Tesco and suppliers including Birds Eye Foods and Reckitt and Colman are sending sample orders and invoices to each other by magnetic tape.

The trials are being carried out under the watchful eye of the Article Number Association.

The organisation formed to carry out bar coded article numbering and symbol marking for grocery product manufacturers and retailers in the UK.

A spokeswoman for the Article Number Association commented: "The trials are already well under way and we expect them to carry on until the early part of next year."

### Trials

"We don't expect to experience too many technical problems - Boots and Makro are already sending sample orders and invoices by means of a telephone link as well as magnetic tape. Those companies are providing a good means of comparing the two methods."

The trials are based on the association's numbering system and a modified version of the transmission standards of SITPRO, Simplification of Trade Procedures Board.

Operational standards for the system have been approved by the association's council which represents 35 wholesalers and retailers and 400 manufacturers and suppliers.

The amendment to the Finance Act came about following recommendations by the association's trading data communications group, Tradecom.

Firms wishing to adopt paperless or electronic ordering and invoicing must give one month's written notice to the VAT Commission. The Act gives Customs and Excise the right to inspect the computer and "any associated apparatus and material."

## Hewlett-Packard drops SOS

HEWLETT-PACKARD, the only major manufacturer to hang its hat on silicon-on-sapphire microelectronics technology, has decided that it is a dead end and although it will continue to manufacture SOS devices for some years, it has terminated advanced research.

The company, which has been researching the technology at its Deer Creek Laboratories at California's Silicon Valley has discovered that the speed advantage is not consistent as densities increase.

"We will continue to manufacture SOS devices for a few years to come yet, but we don't think the technology is a major first," Bob Grimm, director of Hewlett-Packard's technology research centre told Computer Weekly.

"At the moment we are trying to perfect growing silicon on a sapphire substrate."

### Benefits

Grimm explained that, at dimensions of six microns, SOS devices are three times faster than equivalent bulk silicon devices, but at one micron line widths, only a 16% speed increase is possible.

"As the densities increase, the speed benefits decrease," he emphasised.

phased that HP would continue to make SOS devices of three to four microns, not just for high speed applications.

"The technology is good as an insulating substrate and can be used in high voltage isolation applications. It is also less susceptible to radiation effects and the military is interested," said Grimm. However, disadvantages of the technology are that yields are low and the sapphire substrates cost about 10 times more than silicon substrates.

At present HP uses SOS to make 16-bit microprocessors, bus-controller chips for the IBBE 488 interface bus, and other communication chips. It also plans to continue developing higher density and higher speed SOS memories beyond the existing 2K RAM and 32K ROM, including a 128K ROM.

Other companies which have worked on SOS include RCA and Intel, but HP is the only firm to use it as the basis of major commercial products.

### \$150m bid for SEL

SYSTEMS Engineering Laboratories, builder of powerful 32-bit machines for scientific and industrial applications, is the subject of a takeover bid valued at about \$150 million from Gould Inc. At one time the big electrical and electronics equipment manufacturer was understood to be a serious suitor for Modcomp.

Gould is reported to be interested in Systems Engineering as a means of strengthening its position in the factory automation and energy management industries. At least one other contender in the energy management business, Westinghouse Electric, already uses Systems Engineering machines in its OEM systems.

## Bleak outlook for Insac as Govt starts to sell off SPL and SDL

THE future of Insac, the National Enterprise Board's software consortium, looks more uncertain than ever as the sale draws closer of the board's shares in two Insac founding members, SPL and Systems Designers.

The board is actively pursuing negotiations with possible purchasers for the two software houses, of which it currently owns 79.9% and 26% respectively.

SDL has agreed a settlement with Insac by which their relationship will be brought to a close. Insac provided help in setting up SynDes Inc, its US arm.

Insac is however pressing ahead with marketing the products of its acquisition in the US, Altergo Software Inc, which has now been renamed Insac Software Inc. It is intended to broaden the range of

products offered, concentrating on aids to programmer productivity in contrast to current products that concern teleprocessing and machine productivity.

Insac Software is now based at Atlanta, Georgia and is headed by Joseph Ganem.

Front runner to buy SPL is the Dutch industrial company Retel. Chairman Peter Adams describes himself as "not worried" by this, as Holland is in the EEC, but the NBB is also looking for a UK buyer as this might be preferred by industry Secretary Sir Keith Joseph who would have to approve the sale.

Two or three merchant banks are in discussion with the board about buying SDL. It is understood that one of these is Kleinwort Benson, which already has a

stake in word processor maker Data Recall. Chairman Philip Swinestead hopes that, about three years after the sale, the firm's shares will be offered to the public.

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## End of an era as Chubb closes

CONFIRMING the worst fears of the unions involved, cash register manufacturing by Chubb Cash at Brighton is to cease completely with the loss of up to 550 jobs.

The Brighton company was the last UK-owned electronic cash register builder and used to be a major force in the UK market before being hit by foreign competition. Up to four years ago it was owned by Gross Cash Registers.

Attempts to keep the Brighton operation going included calls by the unions for import controls on Japanese ECRs and an undertaking by Andrew Bowden, MP, (Con, Brighton Kemptown), to put pressure on Trade Secretary John Nott to halt the import flood.

Chubb Cash chairman William Egar said that there had been discussions with the Department of Industry about financial backing but that only "limited facilities" had been offered. Egar commented: "It would have been easier if we had been in the North East or on Merseyside. Brighton is the wrong place."

Chubb Cash's profitable cash dispenser manufacturing operation at Brighton is not affected by the redundancies. But there have been warnings by TASS, the white collar section of the Amalgamated Union of Engineering Workers, that there might be industrial action in the cash dispenser division to save jobs in the cash register sector.



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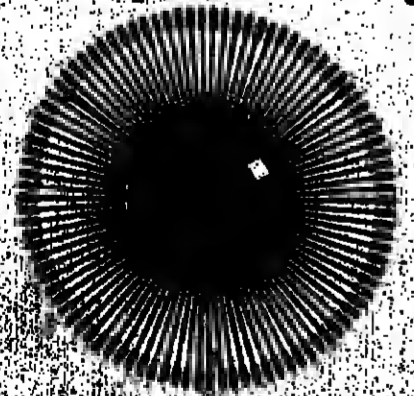
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